

9/18/06 - 02693

**Munitions Removal Action Work Plan**  
**Live Impact Area (LIA) and Eastern Conservation Area (ECA)**  
**Former Vieques Naval Training Range**  
**Vieques Island, Puerto Rico**

Contract No. N62470-05-D-6208  
Task Order No. 0002

Prepared for:



Naval Facilities Engineering Command, Atlantic  
6506 Hampton Boulevard  
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Prepared by:



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September 18, 2006

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## TRANSMITTAL LETTER

<b>To:</b>	<b>Naval Facilities Engineering Command Atlantic 6506 Hampton Blvd. Norfolk, VA 23508-1278</b>	<b>Date:</b>	<b>September 22, 2006</b>
<b>Attention:</b>	<b>Chris Penny, NAVFAC – 2 copies</b>	<b>PRI Project No.</b>	<b>215002.01</b>
<b>Cc:</b>	Stacin Martin, CH2MHill Office – 3 copies Camp Garcia, NAVFAC/CH2MHill – 5 copies Richard Hanoski, USA Office – 2 copies Camp Garcia, PRI/USA Field – 4 copies Peter Porter, PRI – 1 Copy PRI/USA JV File – 1 Copy	<b>Contract No.</b>	<b>N62470-05-D-6208 Task Order 002</b>
<b>Project:</b>	<b>Vieques Island</b>	<b>RE:</b>	<b>Work Plan</b>

**We are forwarding:**

<input checked="" type="checkbox"/> Herewith	<input type="checkbox"/> Under Separate Cover
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Enclosed please find the following:

- Final Work Plan

Copies distributed as detailed above.

Should you have any questions, please do not hesitate to contact me.

Sincerely,  
PRI/USA, A Vieques JV

***Peter Porter***

Peter Porter  
Program Manager

**SUMMARY OF INCORPORATED CHANGES TO THE MUNITIONS REMOVAL ACTION WORK PLAN  
LIVE IMPACT AREA – EASTERN CONSERVATION AREA - FORMER VIEQUES NAVAL TRAINING RANGE  
VIEQUES ISLAND, PUERTO RICO, FINAL WORK PLAN  
SEPTEMBER 18, 2006**

Comment No.	Paragraph	To/Added	Page/s	Remarks
<b>General Comments</b>				
1	Title Page	Added ECA to the title of document	Cover	Complete
2	2.1 (3RD Bullet), 2.2 (3rd Par.), 3.0 (8th Bullet) 3.1, 3.13, 3.3, & 15	Added "Commonwealth" to listing of governments	Misc.	Complete
3	(1&4 par.), 1.2 (3 <sup>rd</sup> par.), 1.3 (par. 2), 2.5 (par. 2), 2.8.1, 2.8.3, 2.9.1, 2.9.2.2., 2.11, 2.13.4 (par. 4) 2.16, 4.1, 4.4, 4.4.1, 4.4.2, 7.1, 8.4 (deleted reference to CH2M HILL), 10.1, 10.10.3 (par. 2) 11,12	Changed from CH2M Hill to NAVFAC Atlantic	Misc.	Complete
4	2.12, 3.11, 3.5.1, 3.1	Changed reference from Advent Environmental to on-site explosives provided.	Misc.	Complete
<b>Specific Comments</b>				
1	2.1	Verbiage "or leased" deleted	2-1	Complete
2	2.2	1 <sup>st</sup> sentence changed to "review of project plans and documents, approving/coordinating site access..."	2-1	Complete
3	Figure 2-1	Organization chart modified and names added	2-2	Complete
4	2.4	Second sentence changed to read 20mm and greater will be removed.	2-4	Complete
5	2.8.1	Second sentence deleted and replaced with suggested text. 5 <sup>th</sup> deleted.	2-7	Complete
6	2.8.3	Paragraph rewritten to include "UTM, State Plane coordinate system" will be used.	2-8	Complete
7	2.9.1	Sentence added to address predetermined scrap consolidation points.	2-8	Complete
8	2.10	Safe to Move text to be provided in SOP "MEC Transportation"	2-9	Complete
9	2.11	Par revised to add the verbiage "3X equivalent" vice "3X".	2-10	Complete
10	2.13.4	1 <sup>st</sup> sentence in the 4 <sup>th</sup> par deleted.	2-16	Complete
11	8	Verbiage regarding data recording and PDA's added.	8-1	Complete
12	8.6	New par. Added addressing the weekly reports. Additionally par. 8.8 revised (deliverables)	8-2	Complete
13	10.12.2	Quality Control Methods revised in accordance with Mil-Std-1916 level of QC inspection criteria	10-22	Complete
14	10.12.3	QC failure criteria changed to match March 2005 TCRA WP	10-24	Complete
15	Figure B-2	Revised		Complete

**VERBAL COMMENTS MADE DURING PRECONSTRUCTION MEETING**

1	SOPs to be developed for ICM's and MEC Transportation and ID. A separate Appendix Will be develop to Contain site specific SOPs. Par 2.7 addresses ICM's. Also through the document I have referred to on-site SOPs.	Appendix I		
2	Footnote added regarding alternate approved process of QC in lieu of the MILSTD 1916	Par 10.0		

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September 17, 2006

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Appendix D	Accident Prevention Plan
Appendix E	Munitions Constituents Sampling and Analysis Plan
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Appendix I	Standard Operating Procedures (SOP's)

## ACRONYMS AND ABBREVIATIONS

AFWTF	Atlantic Fleet Weapons Training Facility
amsl	above mean sea level
APP	Accident Prevention Plan
BATF	Bureau of Alcohol, Tobacco, Firearms, and Explosives
BIP	Blown in Place
CAR	Corrective Action Request
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWM	Chemical Warfare Materiel
DDESB	Department of Defense Explosive Safety Board
DERP	Defense Environmental Restoration Program
DFW	Definable Features of Work
DID	Data Item Description
DoD	Department of Defense
DOI	Department of the Interior
DQO	Data Quality Objective
EM	Engineer Manual
ER	Engineer Regulation
ft	foot/feet
GFE	Government Furnished Equipment
GIS	Geographical Information System
GPS	Global Positioning System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HTRW	Hazardous, Toxic, and Radioactive Waste
IM	Interim Measures
LIA	Live Impact Area
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MGFD	Munitions with the Greatest Fragmentation Distance
MPPEH	Material Potentially Presenting an Explosive Hazard
MRS	Munitions Response Site
MSD	Minimum Separation Distance
NASD	United States Naval Ammunition Support Detachment
NAVFAC	Naval Facilities Engineering Command
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
OB/OD	Open Burn/Open Detonation
OSHA	Occupational Safety and Health Administration
PDA	Personal Data Assistant
PETN	Pentaerythritol Tetranitrate
PPE	Personal Protective Equipment
PRI	Project Resources, Inc.
PRI-USA JV	Project Resources, Inc. and USA Environmental, Inc., A Vieques Joint Venture
QA	Quality Assurance

QC	Quality Control
QD	Quantity Distance
RCRA	Resource Conservation and Recovery Act
RDX	Cyclotrimethylene Trinitramene
RRD	Range Residue Debris
SIA	Surface Impact Area
SOW	Statement of Work
SHSP	Site Health and Safety Plan
SUXOS	Senior Unexploded Ordnance Supervisor
TCRA	Time Critical Removal Action
TP	Technical Paper
USA	USA Environmental, Inc.
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance
UXOSO	Unexploded Ordnance Safety Officer
UXOQCS	Unexploded Ordnance Quality Control Specialist
UXOTI	Unexploded Ordnance Technician I
UXOTII	Unexploded Ordnance Technician II
UXOTIII	Unexploded Ordnance Technician III
VNTR	Vieques Naval Training Range

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## 1.0 INTRODUCTION

This Work Plan describes the goals, methods, procedures, and personnel that Project Resources, Inc. (PRI) and USA Environmental, Inc. (USA), A Vieques Joint Venture (PRI-USA JV) will use for the removal of munitions and explosives of concern (MEC) located on the ground surface of the Live Impact Area (LIA) in the former Vieques Naval Training Range (VNTR) located on Vieques Island, Puerto Rico. MEC is a safety hazard and may constitute an imminent and substantial danger to site management personnel and others. This plan is intended to supplement the Time Critical Removal Action (TCRA)/Interim Measures (IM) Work Plan and provides site-specific approaches for carrying out the removal action (NAVFAC Atlantic, 2005). USA will be performing MEC clearance activities and associated activities in the LIA within the multiple Munitions Response Site (MRS) areas, which are determined by site conditions.

PRI-USA JV prepared this Work Plan for the Department of the Navy, Navy Facilities Engineering Command (NAVFAC) Atlantic Division in accordance with the Department of Defense (DoD) regulations and guidance, the Defense Environmental Restoration Program (DERP), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Contingency Plan (NCP), the Resource Conservation and Recovery Act (RCRA), the U.S. Army Corps of Engineers (USACE) Data Item Description (DID) MR-005-01 (Type II Work Plan), and the Statement of Work (SOW), dated 28 July 2006.

The objective of the TCRA/IM is to reduce risks at MRSs identified as posing an explosive hazard due to MEC present on the ground surface. The primary risk is posed to unauthorized personnel accessing the areas identified for removal, which is currently restricted; however, trespassing occurs regularly in these areas. The restrictions to these areas are currently not anticipated to be lifted. The objectives will be met by removing MEC present on the ground surface or exposed at the ground surface.

A listing of munitions items that have been used at the MRS areas is provided in Table 1-2 of the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

### 1.1 SITE LOCATION

The Island of Vieques is located about 7 miles off the southeast coast of Puerto Rico and encompasses approximately 33,000 acres (52 square miles). The Naval Ammunition Support Detachment (NASD) encompasses approximately 8,000 acres and is situated on the west side of Vieques Island. The former VNTR consists of approximately 14,500 acres and is located on the east side of the island, bordered to the north by the Vieques Sound, to the south by the Caribbean Sea, and to the west by the community of Isabel Segunda. Figure B-1 depicts the regional location of Vieques Island with relation to Puerto Rico.

The LIA encompasses approximately 900 acres and is situated on the east side of Vieques Island within the former VNTR, bordered to the north by Vieques Sound, to the west by the Surface Impact Area (SIA), to the south by the Caribbean Sea, and to the east by the Eastern Conservation Area. The site location and MRS areas are depicted on Figure B-2.

## 1.2 SITE HISTORY

Two-thirds of Vieques Island was purchased by the U.S. Navy in 1941 for use by the United States Navy Atlantic Fleet as an ammunition storage facility and personnel training site during World War II. The NASD is located on the western portion of the island and was formerly used to receive, store, and issue ordnance for support of Atlantic Fleet activities. The former VNTR is located on the eastern portion of the island and was used for training of military personnel from the 1950s to 2003. The former VNTR includes the Eastern Maneuver Area; the Atlantic Fleet Weapons Training Facility (AFWTF), comprised of the SIA and the LIA; and the Eastern Conservation Area located at the eastern most tip of the island.

During active operations, the VNTR provided training for naval gunfire support, small arms, special operations, combat search and rescue, and air-to-ground bombing and strafing, as well as ground warfare and amphibious training for Marines. The LIA consisted of several target areas, installed during the 1960s and 1970s, which supported naval gunfire and air-to-ground training. Unexploded ordnance (UXO) was routinely disposed of at the open burn/open detonation pit (OB/OD) within the LIA. In 2003, operations ceased at the VNTR and the area was subsequently transferred to the United States Department of the Interior (DOI). The United States Fish and Wildlife Service (USFWS) currently manages the DOI properties as the Vieques National Wildlife Refuge.

The historical usage of the MRSs can be located in the Table 1-1 of the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

## 1.3 TOPOGRAPHY, VEGETATION, AND GEOLOGY

Topography on the west side of Vieques Island is comprised of gently rolling hills and valleys, while the east side of the island is comprised of more rugged terrain. Topography for the coastal areas is characterized by level terrain and includes many lagoons and mangrove swamps. Elevations in the LIA range from 0 to approximately 50 feet (ft) above mean sea level (amsl). The highest elevation on the east side of the island is located at Cerro Matias, at approximately 420 ft amsl. The eastern portion of Vieques Island is heavily vegetated with deciduous trees (including several thorny species), low-lying brush, and tall grasses.

The geology of Vieques Island is characterized by volcanic rocks of Cretaceous and Tertiary age overlain by sedimentary and alluvial deposits of Tertiary and Quaternary age, with limestone of Tertiary Age occurring predominantly along the south coastal areas. Alluvial deposits consist of clay, sand, and silt and are generally of Quaternary age. Additional site-specific geologic and hydrologic information is located in Section 1.4 of the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

## 1.4 CLIMATE

The climate on Vieques Island is warm and humid. Prevailing easterly trade winds flow over the island and moderate the temperature to an annual mean of 79 degrees Fahrenheit. Precipitation for the island averages approximately 45 inches per year, with a rainy season that occurs from August through November. Rainfall on the island is heavier in the western portion, which receives approximately 50 inches annually, while the eastern portion of the island receives around 25 inches of annual rainfall.

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## 2.0 TECHNICAL MANAGEMENT PLAN

This chapter documents the approach, methods, and operational procedures that will be employed to execute the tasks required by the SOW. This chapter is prepared in accordance with DID MR-005-02.

### 2.1 PROJECT AUTHORIZATION

The NAVFAC Atlantic Division has tasked PRI-USA JV to provide MEC surface removal actions at the LIA, located in the Former VNTR, in accordance with the SOW requirements.

Work will be performed within the following regulatory framework, as MEC are known to exist on the property formerly owned by the NAVFAC Atlantic Division.

- These MEC response actions are consistent with CERCLA, Section 120 and the NCP, Section 40 Code of Federal Regulation (CFR) Part 300, and are being taken to address a potential threat to public health or welfare;
- The DoD is the MEC response authority with respect to incidents involving DoD military weapons and munitions or weapons and munitions under the jurisdiction, custody or control of DoD as identified by 40 CFR Section 300.120(c) and (d) and 175(b)(4); and
- In compliance with the above, no federal, state, the commonwealth or local permits are required nor need to be obtained for the detonation of MEC on site per 40 CFR 300.400(e).

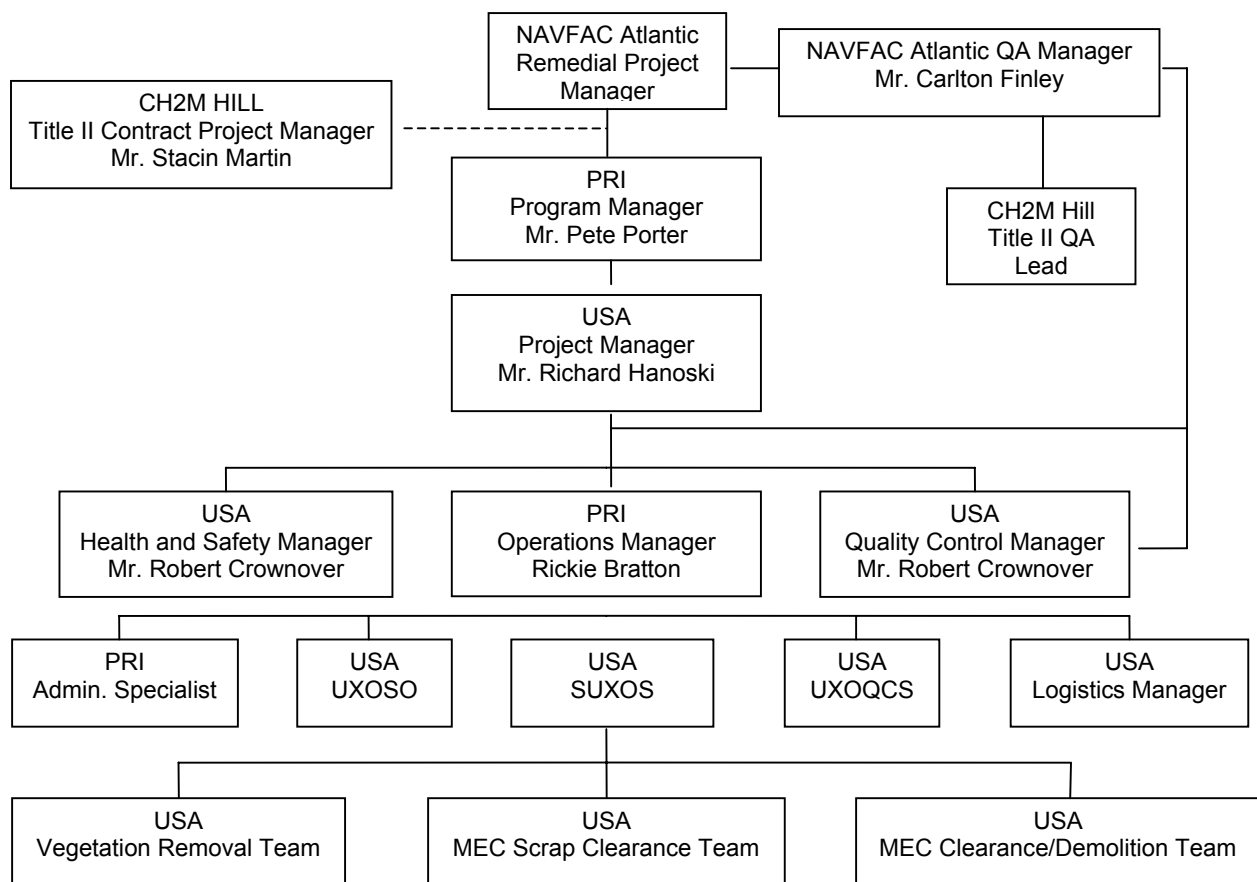
The provisions of 29 CFR 1910.120, Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER), applies to this site.

### 2.2 PROJECT ORGANIZATION AND PERSONNEL

For successful implementation of the removal action, close coordination and cooperation between the project team members must occur. Figure 2-1 depicts the organization for the project team, while the role of each team member is described in the section below.

PRI-USA JV is the prime munitions response contractor and lead technical agency to NAVFAC Atlantic for this project. PRI-USA JV provides comprehensive engineering, project management, and quality control (QC) services in support of this Munitions Removal Action project. PRI-USA JV is responsible for managing the schedule and budget to ensure completion of the tasks detailed in the SOW, procurement of munitions response services, performing site preparation and all MEC removal action operations, production and coordination of project plans and documents. PRI-USA JV will provide UXO Technicians and other personnel as necessary for removal activities. Resumes of key personnel are provided in Appendix H.

The NAVFAC Atlantic Title II Contractor (CH2M HILL) responsibilities include preparation of cultural and biological surveys, review of project plans and documents, approving/coordinating site access, notifications, working with the news media and the public, and coordinating with state, the commonwealth, and local regulatory agencies on issues pertaining to public safety and the environment.



**Figure 2-1: Project Organization**

#### 2.2.1 PROGRAM MANAGER

The Program Manager provides a single point of contact for the Contracting Officer, provides support for the Project Manager at NAVFAC Atlantic and other government representatives, and has complete management authority and responsibility for all work under this contract. The Program Manager has the responsibility for managing the entire MEC removal project, estimating cost, managing budgets, and maintaining control of all program activities.

#### 2.2.2 PROJECT MANAGER

The Project Manager is responsible for managing the overall progress of the task order, ensuring timely submittal of project deliverables, and ensuring that resources are available to field personnel. The Project Manager maintains close communication with NAVFAC Atlantic to assess client satisfaction with PRI performance on this task order.

#### 2.2.3 OPERATIONS MANAGER

The Operations Manager is responsible for all fieldwork performed at the VNTR and will coordinate with the Senior UXO Supervisor (SUXOS) to ensure there are no conflicts in operations (except for operations

where a SUXOS is in charge of MEC activities). The Operations Manager is responsible for overseeing scheduling and ensuring that field related activities are performed in accordance to the specified plans.

#### 2.2.4 QUALITY CONTROL MANAGER

The QC Manager is responsible for reviewing and updating the QC Plan and verifying compliance with the plan. The QC Manager will verify compliance of operations through audits of project activities and review of corrective actions.

#### 2.2.5 HEALTH AND SAFETY MANAGER

The Health and Safety Manager develops and coordinates the Accident Prevention Plan (APP). The Health and Safety Manager is the contact for regulatory agencies on matters of health and safety.

#### 2.2.6 UXO PERSONNEL AND QUALIFICATIONS

PRI-USA JV will provide certification that all UXO personnel are qualified for the positions they occupy. Non-UXO qualified personnel will not perform any excavation nor handle MEC/UXO. As required by the specific task, all site personnel on this project will complete the OSHA HAZWOPER 40-hour training course. All PRI-USA JV field personnel on this project will meet the training requirement found in Table 2-1, Personnel Training. Additional site-specific training, in accordance with 29 CFR 1910.120, Engineer Manual (EM) 385-1-1 (USACE Safety and Health Requirements Manual), and Engineer Regulation (ER) 385-1-92 (Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste and Ordnance and Explosive Waste activities) will be provided to all personnel upon their initial mobilization. All PRI-USA JV field personnel will participate in a Medical Surveillance Program, with the latest exam occurring within 12 months of field operations.

UXO personnel will meet the requirements set forth in the *Department of Defense Explosive Safety Board (DDESB) Technical Paper (TP) 18, Minimum Qualifications for UXO Technicians and Personnel*, dated 20 December 2004. Credit for explosive ordnance disposal experience while assigned to the National Guard or Reserve will be based on the actual documented time spent on active duty, not on the total time of service.

**Table 2-1: Personnel Training**

TRAINING COURSE	PERSONNEL ATTENDING
40-Hour Hazardous Materials Workers Training (HAZWOPER)	All personnel who have not previously received this training or who do not qualify for certification through documented experience or training equivalent to that in paragraphs (e)(1) through (e)(4) of 29 CFR 1910.120. (Reference: Paragraph (e)(9) 29 CFR 1910.120
8-Hour Supervisor Course	All USA management and supervisory personnel. This includes the UXO Safety Officers, Senior UXO Supervisors, UXO QC Specialists, and all UXO Technicians III.
8-Hour Refresher Course	All site personnel, except those that have completed their initial 40-Hour HAZWOPER training within the past year.
First Aid and CPR Training	At least two site personnel will have current first aid and CPR training.

## 2.3 CHEMICAL WARFARE MATERIEL

The likelihood of encountering chemical warfare materiel (CWM) or hazardous, toxic, and radioactive waste (HTRW) is remote. If CWM or HTRW is encountered during any phase of site activities, the Contractor shall comply with CEMP-CE (200-1a) Interim Guidance – Notification Procedures for Discovery of RCWM during USACE Projects, dated 23 April 2004. In the event CWM is discovered, the MEC Team will perform the following actions:

- Work will immediately stop and all personnel will leave the area and move to an upwind location;
- The SUXOS will notify the NAVFAC Atlantic Contracting Officer, Project Manager, and on-site representative. In addition, the SUXOS will also notify the PRI-USA JV Operations Manager; and
- On-site UXO personnel will secure the site and will post two UXO technicians to guard the site until direction is received from NAVFAC Atlantic. PRI-USA JV will stand ready to support NAVFAC Atlantic, as required.

## 2.4 TECHNICAL SCOPE OF WORK

Site preparation for operations in the LIA MRSs will most likely include manual vegetation removal. The removal area will be cleared of MEC, 20mm and larger from the ground surface using magnetometer-assisted methods. In addition, munitions debris (MD) and metallic debris greater than 2 inches X 2 inches will be removed from the ground surface.

A total of 20 hard targets located within the project site will be screened and cleared of munitions-related items by the Range Scrap Management Contractor prior to removal and disassembly. Following hard target removal, the MEC Team will perform surface clearance operations for munitions-related items and range residue debris (RRD) in the footprint areas of each hard target.

## 2.5 MOBILIZATION

PRI-USA JV will perform operations in a systematic manner using proven operating techniques and methods. Mobilization will begin following written approval of this Work Plan and receipt of notification to proceed from the NAVFAC Atlantic Division Contracting Officer. PRI-USA JV will systematically build and establish its operational capability at the LIA. The objective of this phase is to ensure that the proper attention is dedicated to coordinating with the customer and moving to the operational phase as soon as practical. Actions performed during this phase include:

- Identify/procure, package, ship, and inventory project equipment;
- Coordinate with local sources for communications and other support;
- Coordinate with local explosives supplier for delivery of explosives; and
- Finalize operating schedules.

PRI-USA JV will utilize the existing office space established by NAVFAC ATLANTIC at Camp Garcia on Vieques Island.

A detailed schedule showing the phased approach and timing relationships is presented in Section 8 of this Work Plan as Figure 8-1.

## 2.6 SITE-SPECIFIC TRAINING

As part of the mobilization process, site-specific training for all personnel assigned to this project will be performed. The purpose of this training is to ensure that all personnel fully understand the procedures and methods PRI-USA JV will use to perform operations at the LIA, their individual duties and responsibilities, as well as any and all safety and environmental practices/procedures associated with operations. Training topics/issues and training responsibilities are as follows:

- Prior to deployment, the Operations Manager and SUXOS will receive operational briefings on his duties and responsibilities, and will review the work and safety plans;
- Prior to the start of operations PRI-USA JV crews will receive ordnance recognition and UXO safety precautions. This training will be performed by the SUXOS and UXO Safety Officer (UXOSO);
- All personnel will receive training on the individual equipment they will operate while on site; and
- Prior to mobilization, all UXO personnel will receive OSHA HAZWOPER 40-hours (or 8-hour refresher) training as required.

All personnel on site will have completed a pre-placement or annual physical examination that complies with the requirements of 29 CFR 1910.120. All personnel will have been certified as fit to work by an Occupational Physician certified in Occupational Medicine by the American Board of Preventive Medicine, or who by necessary training and experience is board eligible. Documentation as to the medical qualifications of personnel is on file at the site and is provided to the contracting officer.

## 2.7 GENERAL SITE PRACTICES

All operational activities at the LIA will be performed under the supervision and direction of qualified UXO personnel. Non-UXO qualified personnel will be prohibited from performing operations unless they are accompanied and supervised by a UXO Technician. Throughout operations, PRI-USA JV personnel will strictly adhere to the following general practices. Detailed safety precautions and procedures are provided in Appendix D, APP/Site Health and Safety Plan (SHSP). Additionally, all site specific Standard Operating Procedures (SOP's) will be maintained in the USA field office located at Camp Garcia. SOP's will be updated on an as needed basis when site conditions dictate. SOP's will cover specific topics such as Improved Conventional Munitions (ICM's), Transporting MEC, Medical evacuation and MEC Identification.

### 2.7.1 WORK HOURS

Operations will be conducted during daylight hours only. UXO personnel will work no more than 10 hours per day and perform operations no more than 50 hours per week.

### 2.7.2 SITE ACCESS

PRI-USA JV will control access into MEC operating areas and will limit access to only those essential personnel necessary to accomplish the specific operations or who have a specific purpose and authorization to be on the site. All inquiries from outside sources will be referred to the NAVFAC Atlantic on-site representative and/or the NAVFAC Atlantic Public Affairs Office. No hazardous operations will be conducted when unauthorized persons are in the vicinity.

### 2.7.3 HANDLING OF MEC

If required, MEC items will be handled by qualified UXO personnel only. Non-UXO qualified site personnel will be emphatically instructed and closely supervised to ensure they do not handle any MEC.

MEC-related scrap will not be handled or touched unless it has first been checked by a UXO Technician. MEC removal actions will comply with the *Basic Safety Concepts and Considerations for Explosives Operations* (EP 385-1-95a) and with the approved Work Plan.

**--THIS POLICY WILL BE STRICTLY ENFORCED--**

2.7.4 SAFETY TRAINING/BRIEFING

PRI-USA JV will routinely conduct the following safety meetings and briefings:

- Daily general briefing;
- Daily tailgate safety briefing; and
- Visitor safety briefing.

In addition, the UXOSO may hold a safety stand-down at any time he notes any degradation of safety or a safety issue that warrants a review.

2.7.4.1 Daily General Briefing

The daily general briefing will be conducted for all personnel at the site prior to beginning work. A written record of this training and the signatures of personnel attending the training will be maintained on site. The briefing will cover general hazards for the project and any new safety issues or hazards that were identified since the last briefing. This briefing will be conducted by the SUXOS and UXOSO.

2.7.4.2 Daily Tailgate Safety Briefing

The Team Leader (UXO Technician III [UXOTIII]) will conduct daily tailgate safety briefings. The training will focus on the specific hazards anticipated at each work site during that day's operations and the safety measures that will be used to eliminate or mitigate those hazards. It will also refer to other operations within the area whose proximity may have safety ramifications. As work progresses and team locations change within a site, or from site-to-site, any corresponding changes in ingress/egress routes and emergency evacuation routes will also be reviewed during this tailgate briefing.

2.7.4.3 Visitor Safety Briefing

Site visitors must receive a safety briefing and sign in prior to entering the operating area and must be escorted at all times by the UXOSO or the SUXOS.

2.7.5 SAFETY AND ENVIRONMENTAL VIOLATIONS

Safety and/or environmental violations or unsafe acts will be immediately reported to the Operations Manager and SUXOS. Failure to comply with safety rules/regulations or failure to report violations may result in immediate termination of employment. Reckless interference with sensitive species or blatant disregard for environmental issues will likewise not be tolerated and will lead to termination of employment.

2.7.6 WORK CLOTHING AND FIELD SANITATION

Work clothing will be appropriate for the conditions encountered. In most cases this will be Level D personal protection equipment (PPE).



- Personnel will wear short or long sleeve cotton coveralls or work clothing;
- Footwear is sturdy work boots or rubber boots as appropriate (i.e., lug sole and of sufficient height for ankle support). UXO personnel will wear steel-toe safety boots when working around heavy equipment;
- Hand protection will consist of leather or canvas work gloves. Rubber inner or outer gloves may be required where increased protection is needed;
- Safety glasses, face shields, respirators, hearing protection, hard hats, and protective chaps or aprons are available and will be worn when engaged in activities where their use is prudent or required; and
- In no case will tennis/running shoes or abbreviated attire such as tank tops or shorts be permitted.

The team will be outfitted with field decontamination equipment, which will consist of containers of wash water, paper towels, and soap. Prior to commencing operations each day, these facilities will be in place and ready for use in the vicinity of the work area as needed. Good housekeeping and decontamination measures will be practiced.

#### 2.7.7 COMPLIANCE WITH PLANS AND PROCEDURES

Operations will be conducted in the LIA in a systematic manner using proven operating methods and techniques. All activities will be conducted under the direction, supervision, and observation of the Operations Manager, SUXOS, UXOSO, and UXOTIII. All personnel will strictly adhere to approved plans and established procedures. When operational parameters change and there is a corresponding requirement to change procedures or routines, careful evaluation of such changes will be conducted by on-site supervisory personnel. Any new course of action or desired change in procedures will be submitted with justification for approval as required. Approved changes will be implemented in a manner that will ensure uniformity in procedures and end-product quality on the part of the MEC Team. Standard operating procedures for site-specific tasks will be provided on-site.

### 2.8 SITE PREPARATION

Procedures for preparation of the work area will include vegetation removal, equipment functions test, and location surveying data entry preparation, and mapping efforts. Prior to initiating work, each section of the site will be reviewed by the SUXOS who will determine what preparatory measures are needed.

If necessary, additional access routes will be searched and marked prior to the commencement of site activities to ensure safe ingress/egress routes for fire department or other emergency vehicles that may be needed on the site.

#### 2.8.1 VEGETATION CLEARANCE

Manual vegetation clearance will be required throughout the LIA MRSs to allow for MEC operations. Areas requiring vegetation clearance that have been identified as potential migratory bird habitat, the mitigation measures described in the Final Biological Assessment (Gromarine, 2006) will be implemented. UXO technicians will work with the vegetation removal crews to identify MEC or other hazards using hand-held magnetometers and will mark any such items with flagging tape. The UXO technicians will also supervise the vegetation removal operations. Vegetation clearance personnel will consist of one UXOTIII, one UXO Technician II (UXOTII), and ten Sweepers/UXO Technicians I (UXOTI).

### 2.8.2 FUNCTIONS TEST

The Schonstedt GA-52Cx hand-held metal detector will be used to assist with all MEC surface removal operations. A functions test of all Schonstedt GA-52Cx metal detectors will be accomplished prior to the start of each day's operations and periodically as MEC surface removal operations are being performed. The test will be conducted in accordance with the manufacture's specifications. Any change to the established settings will be documented and reported.

### 2.8.3 LOCATION SURVEYS

PRI-USA JV will utilize the existing 30 meter x 30 meter grid system. During MEC operations, PRI-USA JV will identify and record the locations of recovered items using a hand-held global positioning system (GPS) (see Chapter 7 for surveying details) and will record this data in a personal data assistant (PDA). The PRI/USA JV will be recorded using the UTM or State Plane coordinate system. PDA's will be provided by NAVFAC ATLANTIC. Site data recorded in the PDAs will be downloaded to the project website on a daily basis.

## 2.9 MEC SURFACE REMOVAL

PRI-USA JV will perform a surface removal of MEC, UXO, material potentially presenting an explosive hazard (MPPEH), MD, and RRD within 50 acres specified within the LIA MRSS. Operations will begin with MEC scrap clearance and will be followed by MEC removal and demolition. In addition, the MEC Team will perform clearance of munitions-related items from 20 hard targets within the LIA, prior to their removal, and will subsequently perform clearance operations in the hard target footprint areas after the hard target is removed by the Range Scrap Management Contractor

### 2.9.1 SCRAP CLEARANCE

The Scrap Clearance Team, which will consist of one UXOTIII, five UXOTII, and ten Sweepers/UXOTI, will perform a surface clearance and remove metal debris, MD, and RRD from the 50 acres throughout the LIA. All UXO will be marked for disposal. The Schonstedt GA-52Cx will be used to aid in the search operation. Temporary scrap collection points will be established within each operating grid. During operations, scrap will be inspected by a UXO Technician for explosive hazards, collected, and segregated into the three groups (Group 1a, 1b, or 2) as identified in Attachment 2-1 of the TCRA/IM Work Plan (CH2M HILL, 2005). Scrap will be further transported to predetermined scrap collection points. The Scrap collection crew will accomplish moving the scrap from the temporary scrap collection points (established within each operating grid) to the predetermined scrap location points within one week unless site conditions prevent movement.

### 2.9.2 MEC CLEARANCE

Following MEC scrap clearance operations, an MEC Clearance Team consisting of one UXOTIII and five UXOTII/I will perform a magnetometer-assisted ground surface clearance of MEC, UXO, and MPPEH throughout the designated MRSS. Also see SOP's for MEC Identification, ICM's and MEC Transportation.

#### 2.9.2.1 Equipment

The equipment requirements for this activity include:

- The Schonstedt GA-52Cx magnetometer will be used to aid in the identification of MEC on the ground surface;
- Pre-marked baselines maybe used to subdivide the grids into individual search lanes;
- Rope reels containing nylon rope/twine (used to mark individual search lanes);
- Assorted colored pin flags that will be used to mark MEC and anomaly locations (See Table 2-2);
- Miscellaneous common hand tools (e.g., shovels, trowels, hammers, etc.); and
- Forms and logbooks to record site activities and MEC encountered.

**Table 2-2: Marking Material**

Marker	Used to Mark
Red Pin Flag	MEC
Blue Pin Flag	Non-Hazardous Scrap
White Pin Flag	Boundary or Temporary Marker
Survey Laths	Grid Corners

#### 2.9.2.2 MEC Investigation

The work area has been divided into individual operating grids by NAVFAC ATLANTIC. Each grid will be sub-divided into individual search lanes that will consist of an approximately 5 ft wide paths that run parallel to one boundary of the operating grid. Search lanes will run adjacent to each other and completely cover the entire operating grid. To layout the search lanes, the UXOTIII will have personnel perform the following:

- Select two opposing boundary lines for installation of the pre-marked lane base lines;
- Install one of the pre-marked base lines along each boundary; and
- Layout rope or twine between the marks on both base lines to mark individual lane boundaries.

After the individual search lanes have been established, the UXOTIII will direct personnel to begin searching each lane with the Schonstedt GA-52Cx to assist UXO personnel in locating metallic items that may be camouflaged by the soil or hidden in vegetation. The MEC Team will systematically traverse each grid to detect, locate, and remove all MEC items encountered, and recover any MEC-related scrap that is free of explosives. UXO personnel will start at one end of each lane and will move forward toward the opposing base line. During the forward movement, the individual will move the magnetometer from one side of the lane to the other. Both forward movement and the swing of the magnetometer will be performed at a pace that ensures that the entire lane is searched and that the instrument is able to appropriately detect surface items.

When a metallic surface object is encountered, the individual will halt and install the appropriately colored flag at that location (see Table 2-2). Surface MEC encountered will be marked, reported to the SUXOS, and left in place for disposal. The SUXOS will coordinate with demolition personnel for disposal of the item by detonation. If the item is determined to be MD or non-MEC related scrap the UXOTIII will direct the UXOTII to recover the material, and it will be removed from the grid, segregated accordingly, and stockpiled with other scrap. Throughout this operation, the UXOTIII will closely monitor individual performance to ensure that these procedures are being performed with due diligence and attention to detail. If cultural resources are encountered the SUXOS will coordinate with the cultural monitors.

## 2.10 DEMOLITION, EXPLOSIVES, AND MPPEH DISPOSAL

PRI-USA JV will remove and dispose of all MEC, UXO, and MPPEH encountered on the ground surface during the project. The procedures used to locate MEC have been identified in the preceding paragraphs and SOP's. PRI-USA JV will maintain a detailed accounting of all MEC/MPPEH encountered.

If at any time MEC is encountered and is deemed acceptable to move (as per the MEC Transportation SOP's), PRI-USA JV will consolidate items in a pre-determined location at the site. In the event an item is determined to be not acceptable to move, the item will be marked and disposed of in place using blown in place methods. Once the MEC has been destroyed or removed, the area is checked to assure that the initial item was not masking additional items. After the determination has been made that the area is clear, it is leveled with the surrounding grade and restored to its prior condition.

## 2.11 DEMILITARIZATION AND DECONTAMINATION OF MD

Demilitarization and decontamination of MD scrap is based on a system that assigns decontamination levels commensurate with post treatment use. Demilitarization of MD will be performed to a 3X equivalent level in accordance with Attachment 2-1 of the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

## 2.12 MEC/UXO DESTRUCTION

PRI-USA JV will have explosives delivered by an on-site explosives supplier. This will eliminate the need for on-site storage of explosives. PRI-USA JV will utilize the personnel on site to guard any item identified for explosive disposal until arrival of the explosives.

All MEC, UXO, and MPPEH items containing explosives, which are encountered during this project, are disposed of or vented/demilitarized by detonation utilizing standard demolition procedures as outlined in USACE TM 60A-1-1-31 and this Work Plan. PRI-USA JV will use electric firing procedures for positive control of demolition operations. If these methods of disposal are determined to be impractical, PRI-USA JV will notify the NAVFAC Atlantic on-site representative. All explosive disposal operations are performed under the direct supervision of the UXOTIII, UXOSO, and UXO Quality Control Specialist (UXOQCS). Prior to initiation of any explosive charge, the UXOTIII will ensure that all required coordination is made with all necessary agencies (police and fire departments, and landowners/property representatives), and that the area is clear of non-essential personnel.

## 2.13 MEC DISPOSAL

During disposal of MEC and related material, safety is the primary concern. The most obvious requirements are to protect personnel, the public, and the environment from fire, blast, noise, fragmentation, and toxic releases. Planned detonation of explosives requires more stringent safety distance requirements than those for ordnance in storage, and will be conducted in accordance with the requirements outlined in DOD 6055-9-STD.

All PRI-USA JV personnel engaged in MEC demolition activities will utilize these procedures. However, situations may warrant additional safety measures, such as fire trucks, medical personnel, and protective clothing. The SUXOS has the overall responsibility to comply with the minimum requirements listed below and has the authority to upgrade as the situation dictates.

All disposal operations will be closely coordinated with other on-site contractors, the NAVFAC Atlantic on-site representative, and CH2M HILL.

#### 2.13.1 PROCEDURES

PRI-USA JV will dispose of MEC, UXO, and explosively contaminated MEC-related materials on an as needed basis. Demolition operations will begin in a work site when all nonessential personnel are out of the minimum separation distance (MSD) for the munition with the greatest fragmentation distance (MGFD) being disposed. Any MEC that is acceptable to move may be consolidated (see Chapter 4, paragraph 4.3.2) within a designated area to reduce the number of shots and lessen environmental impact. To the greatest extent possible, all items will be blown in place to reduce the risk inherent in handling and movement. All MEC or UXO that is unacceptable to move (e.g. fuzzed items) must be blown in place.

#### 2.13.2 COORDINATION AND SUPERVISION

The on-site disposal shall be under the direct control of an experienced and trained UXO Team Leader (UXOTIII) charged with the responsibility for all demolition activities within the area. The Team Leader, assigned by the SUXOS, shall be responsible for training all personnel regarding the nature of the materials handled, the hazards involved, and the precautions necessary, and shall be present during all on-site disposal operations. The Team Leader will also maintain custody of the blasting machine or remote firing device. The SUXOS and Team Leader will ensure that the appropriate local authorities are notified prior to daily on-site demolitions. Notification authorities are detailed in Appendix D, of the SHSP.

The SUXOS and UXOSO will be on site at all times during disposal operations. The operation is performed under the direction and supervision of the SUXOS, who is charged with the responsibility to ensure that procedures contained in this work plan and referenced documents are followed. The UXOSO monitors compliance with the safety measures contained in the work plan and associated documents. In the event of noncompliance, the UXOSO is vested with the authority to stop or suspend operations. Individuals will report the completion of tasks to the SUXOS. The required tasks include:

- Secure all access roads to the area;
- Visually check demolition site for any unauthorized personnel;
- Check firing wire for continuity and shunt, if applicable;
- Prepare designated shots;
- Check continuity of detonators;
- Secure the detonators in a safe location;
- Ensure remote firing device is charged and ready; and
- Place charge in desired location.

#### 2.13.3 DETONATION OPERATIONS

Prior to conducting a disposal operation, the Team Leader will conduct a safety briefing to the members of the demolition team. This safety briefing will include, at a minimum:

- Phases of the operation;
- Review of explosive handling and precautions;
- Location of safe area;

- Emergency notification procedures;
- Site-specific characteristics;
- Type of MEC being destroyed;
- Placement and quantity of counter charge;
- Misfire procedures;
- Post-detonation clean up of the site;
- Care and handling of explosive materials;
- Personal hygiene;
- Two person rule;
- Potential trip/fall hazards;
- Location of the vehicle;
- Wind direction (toxic fumes); and
- Location of first aid kit and fire extinguisher.

The vehicle engine will be started prior to initiating priming procedures and will be kept running. Prior to priming, permission to prime will be requested from the SUXOS. Telephone or radio communication will be established with emergency response personnel. No radio or cellular telephone transmissions will take place in the vicinity during the positioning or connecting of electrical initiating devices. Additional safety precautions for demolition operations include:

- Conduct operations in accordance with USACE TM 60A 1-1-31 (Explosive Ordnance Disposal Procedures);
- During demolition operations, designate an emergency vehicle (in addition to the vehicle associated with the demolition team) that will remain in the area;
- Keep blasting caps in approved containers, located at least 50-ft downwind from other explosives, until they are needed for priming;
- Always point the explosive end of blasting caps, detonators, and explosive devices away from the body and other personnel during handling. This will minimize injury should the item explode;
- Do not bury blasting caps used for initiation of explosive charges;
- If explosive charges are to be covered or tamped with earth, fit the charges with detonating cord leads that protrude 1.8 meters (6 ft) from the earth;
- Do not use blasting caps less than the equivalent of a commercial No. 8 cap unless used with commercial explosives and approved by the explosives manufacturer;
- Transport to the disposal site only those explosives or initiators needed to meet the requirement of the operation;
- Do not surrender the blasting machine or activating device to the individual designated to fire the shot until the SUXOS is assured that the area is clear;
- Clear an appropriate distance (50 ft) around the demolition site of dry grass, leaves, and other extraneous combustible materials;
- Provide a minimum delay time of 30 seconds for electric operations between detonations; and

- If MEC cannot be blown in place and must be removed, it will be disposed of daily unless otherwise directed by competent authority. Depending on the amount of MEC encountered, a daily schedule may be established for detonation of MEC on-site to allow the site personnel to clear the area and to not alarm the public. The daily detonation time will be announced to the agencies concerned to enhance public relations.

#### 2.13.3.1 General Detonation Safety Procedures

Disposal activities are inherently hazardous and require strict adherence to approved safety and operational procedures. During disposal operations, PRI-USA JV will ensure that:

- Personnel working with electric blasting caps or other electro-explosive devices will not wear static producing clothing such as nylon or silk;
- Prior to making connection with the electric blasting cap, the firing circuit will be continuity tested;
- All parts of the firing circuit will be kept insulated from the ground or other conductors such as bare wires, rails, pipes, or other paths of stray current;
- Electric blasting caps will be connected to the firing circuit before connection to the main initiation charge;
- Electric blasting caps of different manufacturers or types will not be used in the same system;
- The shunt will not be removed from the wires until the individual performing the operation has been grounded;
- The electric blasting caps will be tested for continuity with a galvanometer at least 50 ft downwind from any explosives prior to connecting them to the firing circuit. After the testing is completed, the lead wires will be short-circuited by twisting the bare ends of the wires together. The wires will remain shunted until ready to connect to the firing circuit;
- The electrical lead wires of electric blasting caps, detonators, or other electro-explosive devices should not be pulled; detonation may occur;
- The legs should be unrolled so that the cap is as far as possible and pointing away from the operator;
- The blasting cap will be placed in a hole or behind a barricade before removing the shunt and testing for continuity. The cap should not point toward other personnel or explosives;
- Only authorized and serviceable testing equipment will be used;
- The blasting machine or remote firing device will not be connected to the firing wires until all pre-firing tests have been completed and all preparations have been made to fire the charge;
- The blasting cap will not be held directly in the hand when un-coiling the leads. The wires will be held approximately 6 inches from the cap. This will minimize injury should the cap explode. The lead wires should be straightened by hand and not thrown, waved, or snapped to loosen the coils;
- The shunt will not be removed from the lead wires of blasting caps except when testing for continuity or actual connection into the firing circuit. The individual removing the shunts should be grounded prior to performing this operation to prevent accumulated static electricity from firing the blasting cap; and
- Keep both ends of the firing wires shorted or twisted together except for testing or firing. The blasting caps will not be connected to the firing circuit unless the power end of the firing circuit leads is shorted.

### 2.13.3.2 Electric Firing Procedures

An electric firing system is one in which electricity is used to fire the primary initiating element. An electric impulse supplied from a power source, usually an electric blasting machine or remote firing device, travels through the firing wire and cap lead wires to fire an electric blasting cap. The chief components of the system are the electric blasting cap/electric squibs, firing wire, and the blasting machine. The preparation of the explosive charge for detonation by electrical means is called electric priming. Static electricity is an increased hazard when operating in an extremely cold climate or area of low humidity. Care must be taken to reduce the possibility of premature detonation of electric blasting caps and other electro-explosive devices. The electric demolition procedures are as follows:

- Prepare and place all explosive charges;
- After locating a firing position a safe distance away from the charges, lay out the firing wire. Do not drag firing wire over sand as this may generate a static charge;
- Test the firing wire by using a blasting galvanometer or test set, after you have ensured the testing equipment is functional, and after the firing wire has been unreeled. Ensure ends are twisted together when not testing;
- Separate firing wire conductors at both ends, and touch those at one end to the galvanometer/test set posts. Needle should not move or lamp glow; if either occurs, the firing wire has a short circuit;
- Twist wires together at one end and touch those at other end to galvanometer/test set posts. This should cause a wide deflection of the needle or cause the lamp to glow. No movement of the needle indicates a break. A slight movement indicates a point of high resistance that may be caused by a dirty wire, loose wire connections, or wires with several strands broken off at connections;
- Ground yourself. Test the blasting caps by removing the short circuit shunt. Touch one end of the cap lead wire to one post and other cap lead wire to other post of the galvanometer. The galvanometer's needle should deflect at least half scale. If not, the cap is defective and should not be used. When testing is complete, ensure cap lead wires are twisted together;
- Connect blasting cap lead wires to the firing wire after checking it for static electricity;
- Request permission to prime from the SUXOS and, when granted, connect the blasting caps to the demolition shot;
- Depart to firing point;
- Take cover;
- Obtain a head count;
- Ground yourself;
- Test entire circuit by touching free ends of firing wire to test instrument posts. This should cause a wide deflection of needle or cause the lamp to glow. If the firing circuit is defective, shunt wire. Then go down-range and recheck circuits. If a wire is found defective, replace the wire. If a splice is found defective, disconnect and re-splice the wires. If the cap is found defective, replace it. Retest the entire circuit again to make sure that all breaks have been located before attempting to fire;
- Exercise the blasting machine several times before attaching the firing wire. Untwist ends of the firing wire and fasten them to the posts of the blasting machine;
- Request permission to fire from the SUXOS;



- When granted permission to fire, make three announcements of "Fire in The Hole" on the radio and three long blasts on the safety vehicles horn, and then initiate the charge;
- Observe a 5-minute wait time after the detonation. This wait time may be waived by the SUXOS based on observation of the detonation;
- The Demolition Supervisor and one other UXO Technician will proceed to the shot area; one person will check the shot and the second will remain at a safe distance to render assistance or aid, if required. If the shot is clear, the Demolition Supervisor will notify the SUXOS; and
- The SUXOS will notify all personnel that the shot is clear and they may leave the safe area and open access roads as applicable.

#### 2.13.3.3 Electrical Misfires

In order to prevent misfires, ensure that all blasting caps are included in the firing circuit; all connections between blasting cap wires, connecting wires, and firing wires are properly made; short circuits are avoided; grounds are avoided; and number of blasting caps in any circuit does not exceed the rated capacity of the power source on hand.

Common causes of electric misfires include inoperative or weak blasting machines or remote firing devices, or power source; improperly operated blasting machine or remote firing device, or power source; defective and damaged connections, causing either a short circuit, a break in the circuit, or high resistance with resulting low current; faulty blasting caps; the use in the same circuit of blasting caps made by different manufacturers or of different design; and the use of more blasting caps than the power source rating permits. To clear electric misfires, follow the procedures below:

- Make several successive attempts to fire;
- Check firing wire connections to blasting machine terminals to be sure contacts are good;
- Make two or three more attempts to fire charge;
- Disconnect blasting machine and short firing wire;
- Allow a minimum of 30 minutes to elapse before starting to investigate, then take corrective action;
- Test firing circuit with circuit tester for breaks and short circuits, and correct any defects discovered;
- Remove and disconnect old blasting caps and short wires;
- Connect wires of new blasting cap(s) to firing circuit and re-prime the charge; and
- Reconnect firing wire ends to blasting machine and fire charge(s).

The SUXOS will notify all personnel that the shot is clear and they may leave the safety area and open access roads as applicable. A misfire should be extremely rare if the following procedures are followed carefully:

- Prepare all primers properly;
- Load charges carefully;
- Place primer properly;

- Perform any tamping operation with care to avoid damage to an otherwise carefully prepared charge;
- Fire charge according to proper technique;
- Use dual firing systems. If both systems are properly assembled, the possibility of a misfire is reduced to a minimum;
- Do not use blasting caps underground; use detonating cord; and
- When practical, insert a new blasting cap into charge if this can be done without disturbing the old blasting cap, or prime and place a new charge close enough to the original charge to ensure detonation of both. When necessary, a misfired blasting cap may be removed and a new blasting cap inserted.

#### 2.13.4 EVACUATION AND SITE CONTROL

Control of the demolition site must be maintained during demolition operations. All personnel who are not essential to demolition operations must evacuate to a safe area. Access roads entering the blast area will be blocked with barricades or gates during explosive disposal operations to ensure that unsuspecting individuals are not placed in jeopardy by the explosion. The Team Leader will assure the area is clear of unauthorized personnel and equipment prior to permitting attachment of the initiation devices to the priming charge.

An observer will be stationed at a location where there is a good view of the air and surface approaches to the demolition site. It shall be the responsibility of the observer to notify the Team Leader to suspend firing if any aircraft, vehicle, or personnel are sighted approaching the general demolition site.

A minimum of two UXO qualified personnel, one of which will be the Team Leader, will conduct demolition operations. An electrical firing system provides better control of the demolition activities. Control of initiation devices will remain with the Team Leader until attachment to the firing circuit.

In the event of a fire or unplanned explosion, site personnel will be responsible for extinguishing the fire. If unable to do so, they will notify the local Fire Department and evacuate the area. Personnel will remain at the site as long as the possibility of fire exists as the result of a demolition operation. **NOTE:** Do not attempt to fight explosive fires.

Prevailing weather condition information will be obtained from a reliable source; this data will be logged before each on-site detonation. Demolition charges will not be primed or connected for electrical firing during the approach or presence of a thunderstorm. Other weather conditions (e.g., high winds, dust storms, snow storms, temperature inversions, low altitude clouds, or cloud coverage of more than 50%) may adversely impact planned demolition operations. The SUXOS will consider these conditions when determining whether or not to conduct demolition operations. If weather conditions preclude the disposal by blown in place, PRI-USA JV personnel will secure and cover the MEC with sandbags and properly mark the area until favorable conditions allow the demolition.

#### 2.13.5 FRAGMENTATION DISTANCE

Fragmentation distances and overpressure distances are based upon the net explosive weight of a particular demolition shot plus the priming charge as outlined in Chapter 4, Explosive Siting, DDESB TP-16, and or the MSD listed in the approved Explosive Safety Submission. The calculation of fragmentation and overpressure distances is important in order to ensure the safety of not only site personnel, but also the public. The fragmentation ranges are for open, un-barricaded shots. If there is a protective shelter with overhead protection, a shorter distance is possible with the concurrence of the NAVFAC Atlantic on-

site representative. However, every effort should be made to adhere to the appropriate fragmentation range regardless of shelter or depth of the shot buried.

When detonating multiple shots, insure that all shots are within the appropriate fragmentation range. If this is not possible use tamping or other engineering controls.

#### 2.13.6 BLOW-IN-PLACE PROCEDURES

The MEC Team will evaluate the unexploded ordnance and either detonate the item in place or relocate the ordnance to a designated area within the site. No fuzed ordnance will be moved unless directed to do so by the NAVFAC Atlantic on-site representative. Detonations will occur only after all unnecessary personnel have left the area, road guards have been posted, and the required personnel have been notified. PRI-USA JV personnel not involved in the disposal operation will act as perimeter guards, as directed by the SUXOS.

#### 2.13.7 OPERATIONS IN POPULATED/SENSITIVE AREAS

Evacuation of the public during the demolition of an MEC item is a last resort if all other engineering controls are not adequate. PRI-USA JV will conduct demolition operations only after all personnel protective measures have been completed and reported to the SUXOS. PRI-USA JV personnel will take property protective measures such as, but not limited to: sandbagging, tamping with earth, and barricading. Personnel will only be permitted to re-enter the area after the demolition point has been inspected and the "all clear" has been given by the SUXOS.

#### 2.14 HARD TARGET INVESTIGATION PROCEDURES

The MEC Clearance Team will perform a search of the 20 identified hard targets and remove munitions-related items prior to the targets being removed and disassembled by the Range Scrap Management Contractor. Following removal and disassembly of all hard targets, the MEC Clearance Team will perform an additional magnetometer assisted search of the ground surface in the target footprint areas. Demolition for MEC will follow the procedures listed in Section 2.12. All metallic debris, MD, and RRD will be segregated and stockpiled in a designated area for future transport to the consolidation point.

#### 2.15 SCRAP LOADING

Following MEC clearance and demolition, one team consisting of one UXOTIII, one UXOTII, and one backhoe operator will remove the segregated scrap from each grid and transfer the scrap to a designated consolidation point on site using a backhoe or similar heavy machinery equipment. As the material is being transferred, the UXO Technician III will perform a second inspection of the material to ensure it is segregated correctly. The consolidation point will be determined by the NAVFAC Atlantic on-site representative. All scrap stockpiled in the consolidation point will be transferred to the on-site scrap contractor for processing.

#### 2.16 QUALITY CONTROL

During performance of the removal action operations, PRI-USA JV will perform QC inspections of ongoing and completed work, and QC inspections of equipment and supplies. Following completion of MEC surface removal operations, PRI-USA JV's UXOQCS will perform a QC inspection of a minimum of 10% of the project site. Detailed QC information to include pass/fail criteria, site documentation, and field reports are provided in Chapter 10 of this Work Plan and in the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

## 2.17 RECORDS

The UXO Team Leader (UXOTIII) will prepare and maintain a detailed account of activities performed. The detailed account will include:

- The date and time operations began;
- The date and time operations were completed;
- The number of hours, by labor category, expended in performing operations;
- The type(s) and amounts of explosives (if used);
- The location, number, type, and description of items encountered;
- An estimated weight, in pounds, of the MD; and
- The location of all MEC and UXO items will be determined by GPS and recorded in the PDA.

In addition, the SUXOS will maintain a Daily Log of combined site activities of all site operations.

## 2.18 DEMOBILIZATION

During this phase, PRI-USA JV removes its operational capability from the area and reallocates its personnel and equipment to other projects. PRI-USA JV's Project Manager will closely monitor operational performance throughout the execution of this task order. When a clear projection can be made of the actual completion date he will, with the approval of the NAVFAC Atlantic Project Manager, initiate actions to demobilize personnel and equipment.

Following the completion of operations, the Project Manager and Operations Manager will take action to close all accounts with local vendors and suppliers. Final billing for these accounts will be forwarded to PRI-USA JV for payment.

During demobilization, PRI-USA JV will remove or return to the government all facilities and equipment used to support this project. Government equipment will be returned in a clean and maintained condition. Equipment will be removed as follows:

- Government Equipment: PRI-USA JV will coordinate the turn-in and shipment of all government equipment with NAVFAC Atlantic's Property Management Branch. Disposition may involve transferring the equipment to an incoming contractor, transporting the equipment to a new project site, or shipment of the equipment to the Government; and
- PRI-USA JV Equipment: PRI-USA JV will remove all of its operating equipment from the LIA. The equipment, in a clean and maintained condition, will either be returned to USA-Oldsmar or shipped to another project.

### 3.0 EXPLOSIVES MANAGEMENT PLAN

This plan outlines the explosives management procedures PRI-USA JV will use to perform MEC surface clearance at the LIA. The procedures listed herein are in accordance with DID MR-005-03 and the following documents:

- DOD 4145.26-M, Contractor's Safety Manual for Ammunition and Explosives;
- DOD 6055.9-STD, DoD Ammunition and Explosives Safety Standards;
- Applicable Sections of DOT, 49 CFR Parts 100-199;
- Army Regulation (AR) 385-64, Ammunition and Explosives Safety;
- AR 190-11, Physical Security of Arms, Ammunition and Explosives;
- EM 1110-1-4009 Engineer Manual, Ordnance and Explosives;
- EP1110-1-18 Engineer Pamphlet, Ordnance and Explosives Response;
- Local, the commonwealth and state laws and regulations;
- USACE EM 385-1-95a, Basic Safety Concepts and Considerations for Unexploded Ordnance (revised May 2000);
- USACE EM 385-1-1, Safety and Health Requirements Manual; and
- AFTP 5400.7 Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATF), Federal Explosives Laws and Regulations.

#### 3.1 ACQUISITION

PRI-USA JV will use commercial explosives obtained through an on-site explosives supplier for disposal of UXO and MEC and/or venting of MPPEH. USA has a current BATF license (Expiration date of 1 July 2008) to purchase and use explosives (see Figure 3-1). This license will be posted on site and will be available for local, state, the commonwealth or federal inspection.

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DEPARTMENT OF THE TREASURY - BUREAU OF ALCOHOL, TOBACCO AND FIREARMS

**LICENSE/PERMIT (18 U.S.C. CHAPTER 40, EXPLOSIVES)**

In accordance with the provisions of Title XI, Organized Crime Control Act of 1970, and the regulations issued thereunder (27 CFR Part 55), you may engage in the activity specified in this license/permit within the limitations of Chapter 40, Title 18, United States Code and the regulations issued thereunder, until the expiration date shown. See "WARNING" and "NOTICES" on back.

DIRECT ATF CORRESPONDENCE TO: CHIEF, NATIONAL LICENSING CENTER  
ATF  
2600 CENTURY PARKWAY, SUITE 400  
Atlanta, GA 30345

LICENSE/PERMIT NUMBER: 1-FL-057-33-8G-12602

EXPIRATION DATE: July 1, 2008

NAME: USA ENVIRONMENTAL INC

Premises Address: 5802 BENJAMIN CENTER DR #101  
TAMPA, FL 33634-0000

TYPE OF LICENSE OR PERMIT: 33-USER OF HIGH EXPLOSIVES

CHIEF, NATIONAL LICENSING CENTER: [Signature]

PURCHASING CERTIFICATION: I certify that this is a true copy of a license/permit issued to me to engage in the activity specified.  
[Signature]  
(SIGNATURE OF LICENSEE/PERMITTEE)

LICENSEE OR PERMITTEE MAILING ADDRESS: USA ENVIRONMENTAL INC  
5802 BENJAMIN CENTER DR #101  
TAMPA, FL 33634-0000

The licensee/permittee named herein shall use a reproduction of this license/permit to assist a transferor of explosives to verify the identity and status of the licensee/permittee as provided in 27 CFR Part 55. The signature on each reproduction must be an ORIGINAL signature.

ATF F 5400.14/5400.15, Part 1 (8/89)

**Figure 3-1: USA's BATF Permit**

### 3.1.1 ACQUISITION SOURCE

PRI-USA JV will purchase explosives from an on-site explosives provider. A listing of approved personnel to receive explosives will be provided to the on-site provider prior to taking receipt.

### 3.1.2 LISTING OF PROPOSED EXPLOSIVES

The types of explosives that may be used include:

- Cast booster – (Hazard Classification/Compatibility Group 1.1D); Trinitrotoluene and Pentaerythritol Tetranitrate (PETN);
- Jet Perforators – (Hazard Classification / Compatibility Group 1.4S), 19.5 gram shape charge, Royal Defense Explosive (RDX);
- Detonating cord – (Hazard Classification / Compatibility Group 1.1D); 80 grain per foot, PETN; and
- Blasting caps – (Hazard Classification / Compatibility Group 1.4B) electric, 12-15 foot lead, Lead Azide, Lead Styphnate, PETN.

### 3.1.3 INITIAL RECEIPT

The on-site provider of the explosives is responsible for all permits and documentation for storage as required by federal, state, the commonwealth, and local regulations.

#### 3.1.4 PROCEDURES FOR RECEIPT OF EXPLOSIVES

On receipt, the type, quantity, and lot number of each explosive item will be checked against the manifest and recorded on the Explosive Usage Form (see Appendix F). The original receipt documents and the Explosive Usage Form will be maintained on-site by the Operations Manager.

#### 3.1.5 PROCEDURES FOR RECONCILING DISCREPANCIES IN QUANTITIES SHIPPED AND RECEIVED

The SUXOS will reconcile the delivery shipping documentation with the requested amounts ordered and received. The SUXOS will not sign for or accept shipments with shortages or overages until the discrepancies are corrected.

### 3.2 STORAGE

On-site storage of explosives is not anticipated, as explosives will be purchased on an as needed basis from the on-site provider.

### 3.3 TRANSPORTATION

Transportation of demolition material will comply with all federal, state, the commonwealth, and local regulations. Even though permits are not required under CERCLA for the transportation of small quantities of explosives to be used on-site, USA will use the most expeditious route when transporting demolition material.

#### 3.3.1 PROCEDURES FOR STORAGE OF EXPLOSIVES DURING TRANSPORTATION

After acquisition of explosives from the supplier, USA will utilize a day box for the daily storage and transport of explosives within the project site.

#### 3.3.2 EXPLOSIVE TRANSPORTATION VEHICLE REQUIREMENTS

Explosives will be transported in closed vehicles whenever possible. The load will be well braced and, except when in closed vehicles, covered with a fire-resistant tarpaulin or in an appropriate shipping container.

- Initiating explosives, such as blasting caps, will remain separated at all times. Blasting caps may be transported in the same vehicle as long as they are in a separate container and secured away from other items;
- Compatibility requirements will be observed;
- Only UXOTIII and above may be issued and transport explosive materials. The receiving party shall sign the receipt documents for accountability;
- Operators transporting explosives will have a valid drivers license;
- Personnel will not ride in the cargo compartment with explosives;

- Vehicles transporting explosives will be inspected daily using the Explosive Vehicle Inspection Form (see Appendix F) or a DD Form 626, and will be properly placarded in accordance with 49 CF, 172, Subpart F, if required;
- Beds of vehicles will have either a wooden bed liner, dunnage, or sand bags to protect the explosives from contact with the metal bed and fittings;
- Vehicles transporting explosives will have a first aid kit, two 10:BC rated fire extinguishers, and communications;
- Drivers will comply with posted speed limits but will not exceed a safe and reasonable speed for conditions. Vehicles transporting explosives off-road will not exceed 25 miles per hour;
- Vehicle engine will not be running when loading/unloading explosives; and
- Explosive-loaded vehicle wheels will be chocked when parked.

### 3.4 RECEIPT PROCEDURES

The SUXOS will strictly control access to all explosives. All receipts, issues, and usage of explosives will be properly documented and verified, though physical count, by the SUXOS and UXOQCS.

#### 3.4.1 RECORDS MANAGEMENT AND ACCOUNTABILITY

On receipt, the type, quantity, and lot number of each explosive item will be checked against the manifest and recorded on the Explosives Usage Form (see Appendix F). The original receipt documents and an inventory will be maintained on file by the SUXOS. All original explosive records will be forwarded to the USA Corporate Office for archive in accordance with BATF regulations and requirements, which requires USA to maintain explosive records for commercial purchases for a period of five years. Copies of all records will be maintained on site by the SUXOS and be available for inspection by authorized agencies. Their respective lot number will track explosive items until the item is expended or transferred to Government control and accountability.

#### 3.4.2 AUTHORIZED INDIVIDUALS

PRI-USA JV is required to provide explosives distributors with documentation of individuals authorized to request and receive explosives. The individuals authorized to receive and issue explosives are the USA SUXOS and in some cases, if the SUXOS is not available, the UXOQCS. The SUXOS will designate in writing the individual who is authorized to transport and use explosives.

#### 3.4.3 CERTIFICATION

The SUXOS and UXOTIII performing demolition will sign and date the explosives usage form certifying that the explosives were used for their intended purpose.

#### 3.4.4 PROCEDURES FOR RECONCILING RECEIPT DOCUMENTS

The SUXOS will reconcile the delivery shipping documentation with the requested amounts ordered and received. Any shortages or overages will be reported to the Operations Manager and the Project Manager who will contact the explosives distributor and reconcile any differences. In addition, he will notify the NAVFAC Atlantic on-site representative.

The SUXOS and UXOQCS will be responsible for performing a review of the explosives usage record. If there is a discrepancy between the amount received and the amount of explosives consumed, then they



will review the receipt documentation to see if the records are correct. If the records review does not reconcile the discrepancy, then it will be reported to the Contracting Officer and PRI-USA JV for further investigation.

### 3.5 INVENTORY PROCEDURES

Inventories will be performed at the completion of disposal operations to ensure that all explosive material is accounted for.

#### 3.5.1 STORAGE FACILITY PHYSICAL INVENTORY PROCEDURES

The SUXOS will strictly control access to all explosives. All issues and turn-ins of explosives will be properly documented and verified, through physical count, by the on-site explosives provider. On receipt, the type, quantity, and lot number of each explosive item is recorded on the Magazine Data Card (see Appendix F).

The SUXOS will review all requests for explosives to ensure that only sufficient explosives for the day's operations will be requested and issued. Issues of explosives will be recorded on the Explosives Usage Record and annotated in the daily journal. This procedure will ensure that the issued explosives are accounted for while they are in the possession of individual users. The end user of explosives shall certify on the Explosives Usage Records that the explosives were used for their intended purpose.

- At the end of each disposal operation the UXOQCS and the Demolition Team UXOTIII will reconcile the entries on each Explosives Usage Record, and will turn these records over to the SUXOS or Operations Manager. The record of ordnance items destroyed with the explosives consumed will be kept in the SUXOS daily log; and
- Entries made on the Explosives Usage Records will be verified through physical count by the Demolition Team UXOTIII when drawing or turning-in the explosives, and the UXOQCS will verify the record.

#### 3.5.2 PROCEDURES FOR RECONCILING INVENTORY DISCREPANCIES

Advent Environmental will be responsible for performing a weekly inventory of the explosives within the magazine.

#### 3.5.3 REPORTING LOSS OR THEFT OF EXPLOSIVE MATERIALS

If it is confirmed that ordnance or explosives are missing, then the Program Manager will contact the Contracting Officer immediately by telephone and in writing within 24 hours. The NAVFAC Atlantic on-site representative and PRI-USA JV will be notified following the notification of the Contracting Officer. The Project Manager will notify BATF and immediately begin an investigation. Local authorities will be notified and a written report will be issued within 24 hours.

#### 3.5.4 PROCEDURES FOR RETURN TO STORAGE OF EXPLOSIVES NOT EXPENDED

Explosives that were issued for use, but were not expended will be returned daily to the magazines at the completion of disposal operations. The Demolition Team UXOTIII will return the unused explosives to Advent Environmental for storage in the magazine and will record the items on the Explosives Usage Record.

### 3.6 FORMS

PRI-USA JV will use internal forms for explosives receipt, issue, inventory, and vehicle inspections (see Appendix F).

## 4.0 EXPLOSIVES SITING PLAN

This plan outlines the procedures the PRI-USA JV will use to perform MEC surface removal at the LIA and describes the safety criteria to be employed during MEC operations. This chapter is prepared in accordance with DID MR-005-04.

### 4.1 SAFE SEPARATION DISTANCES

The safe separation distances for the public during intrusive operations will be the MSD based on the USAESCH and DDESB TP-16 for the MGFD, as provided in the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005). If conditions dictate, with the approval of the USAESCH, the MSD for unintentional detonations may be reduced to fit the situation, but in no case will the distance be less than 1/600 square feet, the K50 based on overpressure, or 200 ft minimum, whichever is greater. The MSD for intentional detonations will be the maximum fragmentation distance of the item being detonated unless reduced by engineering controls or 200 ft, whichever is greater.

### 4.2 DEMOLITION AREAS

MEC will be disposed of in the areas where the item(s) are encountered. Items that are acceptable to move (unfuzed) may be consolidated, with the concurrence of the NAVFAC Atlantic on-site representative, to one location within an operating grid to reduce the number of demolition shots.

In areas where an acceptable fragmentation distance cannot be achieved, approved methods of mitigation, such as sandbags, berms, tamping, or barricades (in accordance with HNC-ED-CS-S-98-7, Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions), will be employed to reduce the fragmentation hazard. Additional engineering controls that may be used include the buried explosion module (in accordance with DDESB TP-16) and water mitigation (in accordance with HNC-ED-CS-S-00-3). Copies of the above documents will be on site and available to personnel. If these methods of disposal are determined to be impractical, PRI-USA JV will notify the NAVFAC Atlantic on-site representative.

### 4.3 FOOTPRINT AREAS

Footprint and quantity distance (QD) areas for intrusive and demolition operations are provided on the site maps included in Appendix B.

#### 4.3.1 BLOW-IN-PLACE

Prior to initiation of demolition operations, all non-essential personnel are evacuated from the detonation site. Prior to priming the demolition charges, all avenues of ingress are physically blocked by guard personnel. Radio communications are maintained between all involved parties at all times. Avenues of ingress are not opened without the express permission of the SUXOS. A constant state of vigilance is maintained by all personnel to detect any intrusion into the fragmentation zone or over flights of aircraft.

Upon completion of disposal operations, the UXOTIII and one UXO Technician II will visually inspect each disposal shot. One of these personnel will perform a visual inspection of the disposal site(s). The second person will standby at a safe distance and will be prepared to render assistance in the event of an emergency. Upon completion of this inspection and providing that there are no residual hazards, the SUXOS will authorize the resumption of site operations.

#### 4.3.2 CONSOLIDATED SHOTS

Encountered MEC items that are acceptable to move (unfuzed) may be consolidated to one location within the operating grid to reduce the number of demolition shots and fragmentation contamination. All movement of MEC/UXO will be coordinated with and approved by the NAVFAC Atlantic on-site representative. Consolidated shots will be in accordance with the USACE report *Procedures for demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites, August 98 (Terminology Update March 2000)*. A copy of the report will be available on site for reference.

#### 4.3.3 COLLECTION POINTS

If MEC recovered are deemed safe to move (see MEC Transportation SOP), a collection point location will be designated by the SUXOS and the NAVFAC Atlantic on-site representative. Site personnel will be briefed during the morning safety meetings and updated as required.

### 4.4 EXPLOSIVE STORAGE MAGAZINES

As per the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

#### 4.4.1 NET EXPLOSIVE WEIGHT AND HAZARD DIVISION

As per the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

#### 4.4.2 QUANTITY DISTANCE FOR SITING

As per the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

### 4.5 ENGINEERING CONTROLS

In areas where an acceptable fragmentation distance cannot be achieved, items that are acceptable to move may be moved to another area, with the concurrence of the NAVFAC Atlantic on-site representative, as long as the movement does not require transportation on public roads. If movement to another area is not possible, other methods of mitigation, such as berms, tamping, or sandbag barricades (in accordance with HNC-ED-CS-S-98-7) will be employed to reduce the fragmentation hazard. If these methods of disposal are determined to be impractical, PRI-USA JV will notify the NAVFAC Atlantic on-site representative.

### 4.6 SITE MAPS

The site maps and QD maps are provided in Appendix B of this Work Plan.

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## **5.0 GEOPHYSICAL PROVE-OUT PLAN**

A Geophysical Prove-out Plan is not required as part of this Munitions Removal Action.

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## **6.0 GEOPHYSICAL INVESTIGATION PLAN**

A Geophysical Investigation Plan is not required, as subsurface geophysical investigations will not be performed during this Munitions Removal Action.

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## **7.0 GEOSPATIAL INFORMATION AND ELECTRONIC SUBMITTALS**

This chapter details procedures that PRI-USA JV will use to perform mapping and GIS integration during the Munitions Removal Action. PRI-USA JV developed this plan in accordance with DID MR-005-07.

### **7.1 CONTROL POINTS, SURVEY BOUNDARIES, AND OPERATIONAL GRIDS**

Control monuments, survey boundaries, and operational grids have been established by NAVFAC ATLANTIC. PRI-USA JV will utilize the existing 30 meter x 30 meter grids for this MEC surface removal action.

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## **8.0 WORK, DATA, AND COST MANAGEMENT PLAN**

The Work, Data, and Cost Management Plan is prepared for the purpose of effective management of allocated funds and manpower. The plan defines the approach to managing the project, the method of cost control, and outlines a schedule for implementing the project. This chapter has been prepared in accordance with DID MR-005-08.

Effective management is an essential element in delivery of a quality product. PRI-USA JV is committed to providing a management structure that meets this goal and is tailored to the operational requirements of the project. Early in the mobilization process, PRI-USA JV brings its management personnel on line. This ensures that from the onset, managerial, safety, and quality control personnel are integrated into the operation. PRI-USA JV's experience has shown that dedication of these resources during the initial phases of a project reaps significant manpower and cost savings during the operational phase. Work data. Through out the performance of the is task order, the PRI-USA JV all operational data and item data will be recorded using the NAVFAC Atlantic on-site data collection system. The on-site data collection system will be updated using data collected and recorded by the PRI-USA JV using handheld PDA's.

### **8.1 PROJECT MANAGEMENT APPROACH**

PRI-USA JV has evaluated the work requirements for this Task Order and has developed a comprehensive approach for meeting its objectives. Our approach provides a phased structure for performance of the work, which results in maximized project performance. The goals and objectives of each operational phase and its specific manpower requirements are identified in Chapter 2 of this Work Plan.

### **8.2 COMMUNICATION**

Communication is a key aspect of project management. A work task proposal was prepared to define the statement of work and plan the project deliverables. A copy of the work task proposal was given to each member of the project team as a reference guide for the project. The role of the project manager is to direct the project team to implement the plan to prepare the deliverables. This will be accomplished via team meetings, one-on-one meetings with team members, and review of deliverables during the preparation process.

Communications for this project will generally flow along the lines established by the organization depicted in Chapter 2, Figure 2-1. All communications between PRI-USA JV and NAVFAC Atlantic will primarily be directed through the Project Manager or the Contracting Officer at NAVFAC Atlantic. Communication directly between PRI-USA JV and other government entities associated with this project will only occur when directed by NAVFAC Atlantic.

### **8.3 SUBCONTRACTORS**

PRI-USA JV will maintain overall supervisory responsibility for all operations. Subcontractors will work under the direction and oversight of the SUXOS and will be monitored by the UXOSO and UXOQCS. All operational activities will be scheduled by the SUXOS and a strict accounting will be made of actions performed and activities completed. Throughout their operations, subcontractors will coordinate their operational schedules with the SUXOS and strictly adhere to this Work Plan and associated SHSP.



## 8.4 RECORDS MANAGEMENT

Hard copies of primary records for this Munitions Removal Action at the LIA will be retained in the project files located in the Document Control Center in the PRI office located at 3760 Convoy Street, Suite 230, San Diego, California. Such records will include the delivery order and any modifications; correspondence including meeting minutes and monthly reports, draft submittals, responses to comments and final submittals; and correspondence received from NAVFAC Atlantic or other agencies. Electronic versions of working products will be retained within the respective JV company. Historical records and documents including the Archives Search Report, previous study reports, historical drawings and maps, and related items will be retained in working files located in the Project Manager's office. Copies of these data will be provided to NAVFAC Atlantic on CD-ROM as required by the SOW.

## 8.5 PROJECT SCHEDULE AND DAILY WORK SCHEDULE

PRI-USA JV has prepared an initial project schedule for the work associated with this task order. The schedule depicts the activities associated with the work in each operating area, the sequence in which the work will be performed and a proposed start and finish dates for accomplishing the work. Schedules are based on a 50-hour work week, consisting of five 10-hour days. Work schedules may vary depending on site requirements and seasonal conditions.

Figure 8-1 presents a project schedule showing the logical progression of tasks and the number of working days required to complete each task.

## 8.6 REPORTS

This section discusses the reports that will be submitted during and after project operations.

### 8.6.1 DAILY REPORTS

During field operations, the Operations Manager will prepare a report and forward it to the USAE Project Manager and the NAVFAC Atlantic on-site representative. A digital copy will be uploaded to the data management system and a hard copy provided to the on-site NAVFAC Atlantic representative.

### 8.6.2 MONTHLY REPORTS

During field operations, the Project Manager will prepare a monthly report and forward it to the PRI Program Manager. The Project Manager will incorporate the field report and forward it to the Program Manager. The Program Manager will submit the report to NAVFAC Atlantic. Information on the following will be provided:

#### 8.6.2.1 General

- Contract number, task order number, project location, and ending date of the report;
- Brief description of project scope and methodology/equipment used for detection of MEC;
- Name of Project Manager, SUXOS, UXOSO, and UXOQCS; and
- Name of Government representative on site.

#### 8.6.2.2 Cost, Schedule, and Progress Data

- Progress by Task including actual completion versus planned;
- Project schedule indicating baseline schedule and explanations for deviations; and
- Number of disposal events.

#### 8.6.2.3 Discussion of Issues

- List/status of pertinent correspondence related to the project;
- List/status of deliverables and dates submitted; and
- Discussion of any issue that impacts completion of project on schedule.

#### 8.6.2.4 Field Information

- Statistical Data including;
  - Percent of project completed;
  - UXO items recovered;
  - Areas passing QC and quality assurance (QA);
  - Number of inert MEC items recovered;
  - Pounds of RRD removed;
  - Hard targets cleared and removed;
- Significant comments including types of MEC, presence of visitors, number of demolitions; and
- Results of daily safety inspections.

#### 8.6.2.5 Exposure Data

- Hours worked in direct support and cumulative hours to date;
- Number of lost workday accidents and cumulative for the project;
- Number of lost workdays due to on-the-job accidents and cumulative to date; and
- Number of property damage accidents in which property loss value is \$2,000 or more, and cumulative to date.

### 8.6.3 AFTER ACTION REPORT

Throughout the execution of this task order, PRI-USA JV will collect data that will be incorporated into the final report. PRI-USA JV will submit a Draft After Action Project Report after fieldwork is completed. A Final Project Report shall be submitted after receipt of comments from the Contracting Officer. The Draft Project Report will contain, as a minimum:

- All mapping data;
- Detailed listing of hard target investigations and results by target number;
- Detailed accounting of all disposed MEC and MEC-related materials;
- Daily journals of all activities associated with the job site;

- A recapitulation of exposure data. This will include total number of man-hours worked on-site by Task;
- Scrap material turn-in documentation;
- QC documentation;
- Color photographs depicting major action items and MEC discoveries;
- A financial breakdown of all Time and Material costs and labor hours expended; and
- Major problems or issues encountered with supporting documentation if available.

#### 8.7 COST CONTROL AND TRACKING

A computer-based cost control and tracking system will be used to prepare earned value monthly reports. The report will be prepared to assess the expenditures on each open task. The expenditures on each task will be rolled-up to total project expenditure.

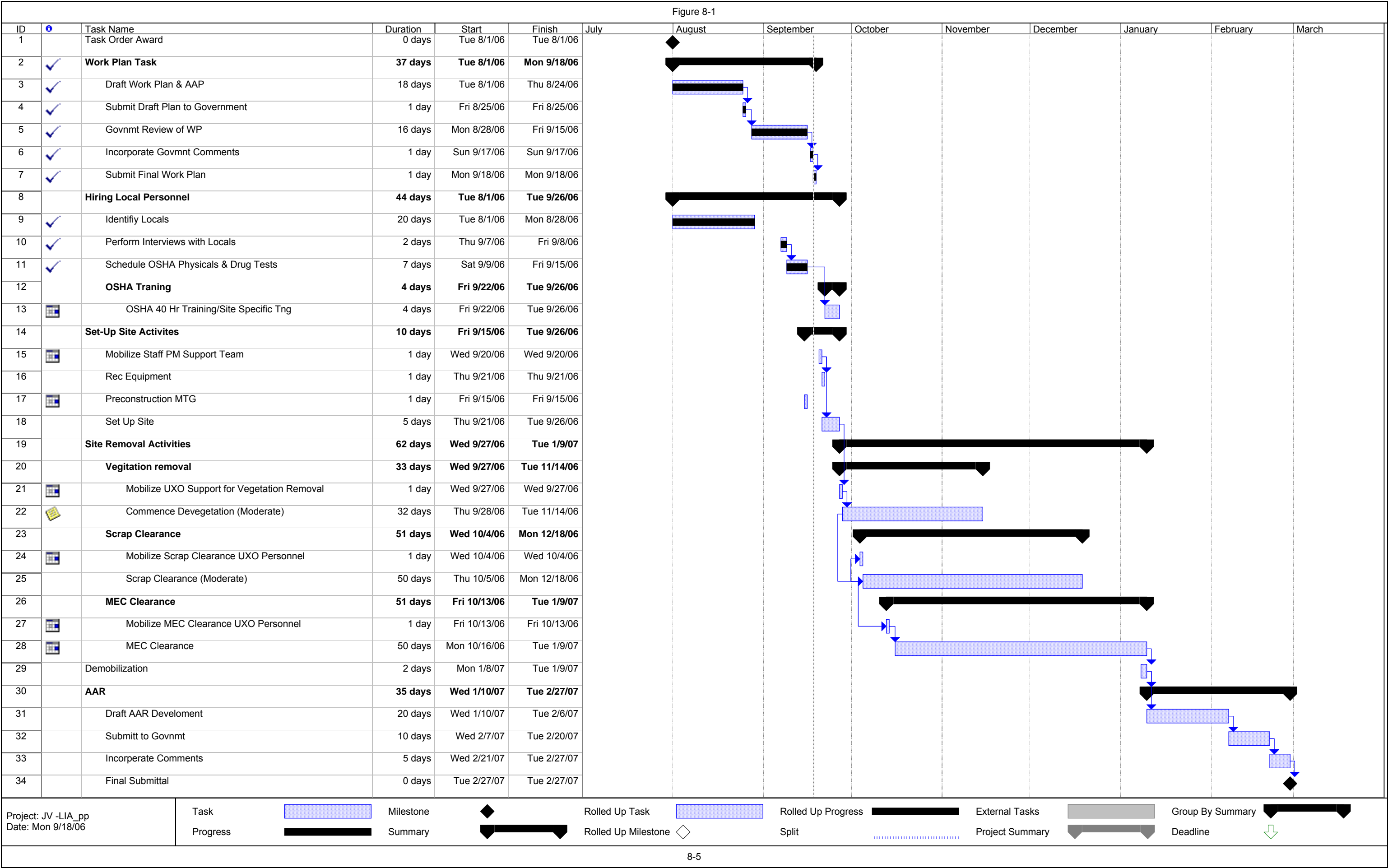
#### 8.8 DELIVERABLES

The Project Manager is responsible throughout the project for issuing the following documents, which are important with respect to the Work, Data, and Cost Management Plan:

- Draft Work Plan (due 28 days after authorization);
- Final Work Plan (due 14 days after receipt of comments from Contracting Officer);
- Daily/Weekly/Monthly Reports (only during field operations);
- Draft Project Final Report (due 15 days after completion of field work); and
- After Action Project Final Report (due 7 days after receipt of comments from Contracting Officer).

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**Figure 8-1: Project Schedule**



## 9.0 PROPERTY MANAGEMENT PLAN

This Property Management Plan has been prepared in accordance with DID MR-005-09 and with FAR Part 45.5 and its supplements. At this time, it is anticipated that Government Furnished Equipment (GFE) will be utilized.

The objective of this plan is to ensure control and accountability procedures for all aspects of the equipment used during the project, which is separated into field equipment (Table 9-1), office equipment (Table 9-2), and consumables (Table 9-3).

### 9.1 DESCRIPTIONS AND QUANTITIES

Equipment and materials used during this project will primarily be limited to field equipment. Office equipment needed for generating forms and reports will be located at the project office located in Camp Garcia. All other command center operations will be conducted by PRI-USA JV. Table 9-1 through 9-3 shows the equipment that will be utilized to complete this project.

**Table 9-1: Field Equipment**

Equipment Item	Quantity	User
Crew Cabs 4x4	8	Operations Manager, SUXOS, UXOSO, UXOQCS, UXO Field Teams
Schonstedt 52-CX	10	Field Teams
Camera Equipment	1	SUXOS
Handheld Radios	5	SM, SUXOS, UXOSO, UXOQCS, Admin, Field Teams
Cellular Telephone	2	SUXOS, UXO Field Teams
First Aid, Portable Eyewash	1 ea	Each Vehicle
Blasting equipment	1 set	MEC Team/Demolition Team
Fire Suppression Equipment	1 ea	One for Each Vehicle, one 10 BC for DEMO vehicle
Storage Container	1	Site Personnel

**Table 9-3: Administrative Equipment**

Equipment Item	Quantity	User
Computer	2	SUXOS, Operations Manager
Printer	1	SUXOS, Operations Manager

**Table 9-5: Consumables**

Equipment Item	Quantity	User
PPE (Gloves, Glasses)	50	All PRI-USA JV Personnel
Hand Equipment	1 lot	Investigation Team
Log Books, Computer Accessories	1 lot	Operations Manager, SUXOS, UXOSO, UXOQCS, Administration
Administrative Supplies	As Needed	Operations Manager, SUXOS, UXOSO, UXOQCS, Administration

## 9.2 SOURCES AND ACQUISITION

In support of the pending field activities PRI-USA JV contacted local suppliers for availability and costs of required rental equipment. Upon receipt of notice to proceed, PRI-USA JV will contact the suppliers to confirm availability and secure rates.

## 9.3 DOCUMENTATION

PRI-USA JV will secure (if possible) three quotes from commercial vendors.

## 9.4 BASIS OF SELECTION

The leased vehicles will be selected using the comparison of rate quotes from three commercial vendors. The number of vehicles will be determined by one vehicle for approximately four employees working on site. The type of vehicles used on site will be determined by the site's physical conditions, such as terrain, weather conditions, and distances between the living quarters, the project office, and the field work area.

## 9.5 VEHICLE ALLOWANCE

During the performance of this effort the Operations Manager, SUXOS, UXOSO, UXOQCS, and Team Leaders will be allowed a vehicle allowance of one truck per personnel. The remaining UXO will utilize a vehicle capable of transporting the MEC Team within the project site.

## 9.6 CONSUMABLES AND PERSONAL PROPERTY

PRI-USA JV disclosed accounting practices prescribe that all materials and supplies required for the performance of the contract/task order will be direct charged to that order, and such materials and supplies are not included in the basis for overhead computation. The only exception is limited to home office supplies and equipment such as letterhead, pen/pencils, standard personal computers, office furnishings, etc. Field office supplies are typically direct charged to the project and not included in the overhead computation.

## 9.7 STORAGE PLAN

Site equipment will be stored in the project office located at Camp Garcia or in lockable containers at the LIA area.

## 9.8 ULTIMATE DISPOSITION

Other than vehicles, equipment used during this project will be the property of PRI-USA JV or its subcontractors and will be returned to subcontractors or PRI-USA JV at the end of the project. If it becomes necessary to use GFE, then this equipment will be cleaned, tested, and returned to the Government in an operable condition forgiving normal wear and tear. Leased and rented equipment will be returned to the supplier at the end of the project.

Any materials generated as a result of field excavations or daily operations will be evaluated, classified (e.g. scrap, recyclable, sanitary waste), and disposed of in accordance with the SOW and Federal, State, and local regulations.

## 9.9 PROPERTY TRACKING LOG

A property-tracking log will be generated during this project for GFE to capture expenditures from PRI-USA JV acquired property that is directly charged to the project. These expenditures are logged on the respective company's generated Petty Cash Voucher that will aid in the building of this log. The log will list all purchased equipment, price, location, and final disposition. An example of a log is shown in Table 9-4.

**Table 9-7: Property Tracking Log**

USA 720 Brooker Creek Blvd., Suite 204 Oldsmar, FL 34677					Property Tracking Log Contract # N62470-05-D-6208 Task Order # 0002	
No.	Equipment Item	Date	Price	Location	Condition	Audit Date
1	Snake Chaps	7/12/06	\$69.00	Wingate Project Site	Operable	7/01/06
2						
3						
4						
5						
6						
7						
<div style="text-align: center; font-size: 48px; opacity: 0.5; position: relative; height: 100px;"> <span style="position: absolute; top: 0; left: 0; right: 0; bottom: 0;">Example</span> </div> <p>This property log will be maintained as needed and audited weekly. The equipment will be verified and Discrepancies will be noted and the Contracting Officer and PRI-USA JV will be notified.</p> <p>Project Manager or Senior PRI-USA JV Employee Signature _____</p>						

## 9.10 PROPERTY LOSS, DAMAGE, OR DESTRUCTION NOTIFICATION

The Program Manager will notify the Contracting Officer by telephone immediately in the event that any GFE is lost, damaged, or destroyed. PRI-USA JV will initiate an immediate investigation into the incident. The Contracting Officer will be notified in writing within 24 hours.

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## 10.0 QUALITY CONTROL PLAN

This QC Plan has been prepared for MEC surface removal operations at the LIA MRSs, located within the former VNTR, located on Vieques, Puerto Rico, and in accordance with the SOW and MILSPEC 1916.

The QC process begins with top management commitment and involvement. The process provides a permanent and workable system that allows each employee to understand the job performance expected. The QC and improvement process ensures that the actions, procedures, and tools support every employee and provides training required to perform a job according to the requirements.

Checklists have been developed to ensure that critical elements are addressed and that QC checks are documented. By promoting teamwork and by focusing attention on the solutions, the quality of work can be increased and assured throughout the project. The overall objective of this QC Plan is to ensure work that is consistent with the SOW, reduce specific cause variation, and continually improve all processes associated with the contract.

This QC Plan provides the procedures and methods that USA will use for the MEC surface removal activities at the LIA. This QC Plan addresses organization and responsibilities, data quality objectives (DQOs), equipment testing and calibration, QC inspections and audits, and reporting procedures.

PRI-USA JV will use the data collected during the MEC surface removal for inclusion in the After Action Report at the completion of the project. PRI-USA JV will implement the following control measures to ensure the quality of the collected data.

### 10.1 QUALITY MANAGEMENT STRUCTURE

The following paragraphs describe the organizational structure of the PRI-USA JV Quality Management Team during operations at the project site. Duties and qualifications of personnel assigned to these positions are provided in the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005). Names and qualifications of site personnel will be provided prior to mobilization.

#### 10.1.1 PROGRAM MANAGER

The Program Manager is responsible for the overall performance of the JV during this project. The Program Manager will provide the level of leadership necessary to ensure successful completion of contract requirements and define roles and responsibilities for project personnel. In addition, the Program Manager oversees the development of program documentation, and also has the following responsibilities:

- Primary point of contract with the NAVFAC Atlantic Contracting Officer;
- Monitoring program performance, cost, and schedule; and
- Review and submission of contract deliverables.

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<sup>1</sup> Dependent on the MRP subcommittee, another approved alternate process may be incorporated in lieu of MILSTD 1916.

#### 10.1.2 PROGRAM QUALITY CONTROL MANAGER

The Program QC Manager is responsible for developing, maintaining, and ensuring implementation of the quality program. This responsibility includes overseeing activities under the guidance of this QC Plan, performing periodic reviews of the processes being implemented, evaluating any recommendations made by the project team over the course of the program regarding use of these processes, and implementing continuous improvement evaluations of the quality program. The Program QC Manager reports directly to the Corporate QC Manager on matters of effectiveness, adequacy, and status of QC methods and procedures, and has the following responsibilities:

- Preparation of QC policies and procedures;
- Ensuring timely submission of contract deliverables;
- Providing training and assistance to the UXOQCS specific to this task order;
- Maintaining a Continuous Improvement Program that incorporates documented lessons learned;
- Reviewing employee qualification records to ensure accuracy;
- Conducting periodic field audits of sites, programs, and projects to ensure QC compliance;
- Developing program-level QC program consistent with corporate guidance and requirements for munitions removal projects;
- Approving project-level QC plans;
- Performing reviews to ensure that sound professional engineering and other technical and regulatory capabilities are applied during planning and execution of MEC operations;
- Monitoring results of site audits;
- Conducting project audits;
- Ensuring that corrective actions are implemented promptly and fully;
- Developing lessons-learned for team distribution; and
- Evaluating the qualifications of the quality team.

#### 10.1.3 PROJECT MANAGER

The Project Manager is responsible for the overall performance during this project. The Project Manager will develop and implement the site Work Plan and also has the following responsibilities:

- Primary point of contract with the NAVFAC Atlantic Project Manager;
- Monitoring project performance, cost, and schedule;
- Ensuring timely submission of contract deliverables; and
- Reporting directly to the Program Manager.

#### 10.1.4 OPERATIONS MANAGER

The Operations Manager is responsible for the day-to-day operations at the project site. The Operations Manager reports directly to the Project Manager and has the following responsibilities:

- Implementation of approved Work Plans, QC, and Health and Safety policies and procedures;
- Reporting to the Project Manager on effectiveness, adequacy, and status of the project;
- Ensuring the timely submission of contract deliverables;
- Analyzing any failures and implementing corrective actions; and
- Establishing additional guidelines to assist in the development of site and task-specific policies and procedures.

#### 10.1.5 UXO QUALITY CONTROL SPECIALIST

The UXOQCS is responsible for the enforcement of the site QC Plan. The UXOQCS coordinates with the Operations Manager for daily operations and maintains a direct line of communication to the Program QC Manager and Project Manager. The UXOQCS reports directly to the Program QC Manager and has the following responsibilities:

- Reviewing, implementing, and enforcing the QC Plan;
- Coordinating with the QA representative to ensure DQOs are appropriate for the task being performed;
- Coordinating with the Program QC Manager to ensure QC procedures are appropriate in demonstrating validity sufficient to meet QC objectives;
- Conducting QC inspections of documents, work in progress, work performed, and monitoring. Recording and reporting the results to the appropriate personnel;
- Ensuring classification of MEC-related items is accurate and consistent;
- Recommending to the Operations Manager any actions to be taken in the event of a QC failure;
- Advising the SUXOS and MEC Team on all QC-related site matters;
- Maintaining a lessons learned log;
- Reporting non-compliance with QC criteria to project personnel and the Program QC Manager; and
- Has STOP WORK authority for issues regarding QC at the project site.

#### 10.2 CONTRACT SUBMITTAL QUALITY CONTROL PROCESS

Documents required under this contract will be developed and maintained by a project team consisting of the Project Manager, Operations Manager, SUXOS, GIS Manager, and Program QC Manager. These team members will contribute their corporate knowledge and experience to the documents to ensure technical quality.

- The Project Manager will take the lead in development of contract documents, and will schedule a peer review and a QC review in sufficient time to meet project milestones for delivery of submittals;
- The Operations Manager will review completed documents to ensure accuracy and completeness of munitions-related procedures and reports;
- The GIS Manager will develop a digital database and maps, overlays of grid patterns and exclusion zones, and other spatial data. The GIS Manager will prepare all drawings or maps needed for submittals, and will perform QC of civil survey data;

- The Program QC Manager will review all documents prior to submittal; and
- After the project team has performed a peer review of documents, the Program QC Manager will perform a QC review to ensure overall quality and completeness.

Comments on submitted documents will be directed by the Project Manager to the appropriate subject matter personnel for resolution. The Project Manager will provide a written response for each comment to the Program Manager and Contracting Officer or designated representative. In addition, the Project Manager will provide a copy of the comments and responses to the Program QC Manager and, if necessary, the Corporate QC Manager for an assessment of the need for corrective action or lessons learned.

Changes to final work plans will be submitted to the UXOQCS immediately upon approval. The UXOQCS will be responsible for ensuring that the changes are incorporated into the hard copy documents on file and that all field personnel are made aware of the changes.

### 10.3 COORDINATION AND MUTUAL UNDERSTANDING MEETING

Prior to the start of site work, project personnel, to include the Contracting Officer or designated site representative, shall meet to discuss the QC program required by the site. The purpose of this meeting is to develop a mutual understanding of the QC details, including forms to be used; administration of on-site and off-site work; and coordination of the Contractor's management, production, and the QC Manager's duties pertaining to this project. As a minimum, the Contractor's personnel who should attend may include the Project Manager, Operations Manager, and Program QC Manager. Minutes of the meeting shall be prepared by the Program QC Manager and signed by both the Contractor and the Contracting Officer or designated site representative. This meeting may be held in conjunction with other meetings. Telephonic or email traffic may be used in lieu of a physical meeting when the situation warrants such action.

### 10.4 QUALITY CONTROL MEETINGS

After the start of site work, the UXOQCS shall conduct QC meetings as required by the approved work plan, with the Contracting Officer or designated site representative and the Project Manager, Operations Manager, or SUXOS responsible for the upcoming work. Meetings conducted shall be recorded in the QC report. The Project Manager may attend any of these meetings. These meetings may be held in conjunction with other meetings (e.g., toolbox safety meetings). As a minimum, the following shall be accomplished at each meeting:

- Review the minutes of the previous meeting;
- Review the schedule;
  - Work or testing accomplished since last meeting
  - Rework items identified since last meeting
  - Rework items completed since last meeting
- Review the status of submittals;
  - Submittals reviewed and approved since last meeting
  - Submittals required in the near future
- Review the work to be accomplished in the next two weeks and documentation required;
  - Establish completion dates for rework items
  - Preparatory phases required

- Initial phases required
- Follow-up phases required
- Testing required
- Status of off-site work or testing
- Documentation required
- Schedule the three phases of control and testing;
  - Preparatory
  - Initial
  - Follow-up
- Resolve QC and production problems;
- Review lessons learned for inclusion into the Continuous Improvement Program; and
- Address items that may require revising the Project QC Plan.
  - Changes in procedures

## 10.5 THREE PHASES OF CONTROL

The Program QC Manager shall perform the three phases of control for each definable feature of work (DFW) to ensure that work complies with contract requirements. The three phases of control include the Preparatory Phase, Initial Phase, and Follow-up Phase, and shall adequately cover appropriate on-site and off-site work in addition to the requirements listed in the subsections below.

The DFWs examples for the activities to be conducted during this TCRA are listed below.

### 10.5.1 CONTROL PROCESS

Quality control of this project will be monitored through all of the DFWs using a three-phase control process. The DFWs and the three-phase control process are discussed in the following subsections.

### 10.5.2 DEFINABLE FEATURES OF WORK

The DFW for this task order are divided into activities related to planning, field operations and final project reports and close-out:

#### 10.5.2.1 Planning

- Pre-Mobilization Activities: System set-up for GIS, document management and control, data management, and subcontracting;
- Technical Project Planning: Technical and operational approach; and
- Removal Contractor Site-Specific Work Plan and standard operating procedures: Preparation and obtaining approval.

#### 10.5.2.2 Field Operations

- Site Preparation: Mobilization, survey, vegetation removal, and surface clearance;
- MEC investigation and removal;

- MPPEH/MD management (inspection/ demilitarization/ certification/ verification/ disposition);
- Demilitarization of MEC; and
- Demobilization.

#### 10.5.2.3 Final Project Reports and Close-Out

- Site-Specific Final Report: Preparation and obtaining approval;
- Proposed Plan and Decision Documents: Preparation and obtaining approval;
- Obtain MEC Response Complete Acceptance; and
- Data Archiving and Project Closeout.

#### 10.5.2.4 Mobilization

This DFW includes all required activities associated with mobilizing at the start of the project.

#### 10.5.2.5 Location Surveying and Mapping

This DFW includes all activities relating to grid layout activities.

#### 10.5.2.6 Vegetation Removal

This DFW includes all activities relating to the removal of vegetation. This feature may need to be subdivided as needed, especially if a more involved approach is used, such as prescribed burning followed by manual clearance.

#### 10.5.2.7 MEC Surface Removal

This DFW includes all activities relating to MEC sweeps to ensure that no surface MEC is present.

#### 10.5.2.8 MEC Disposal

This DFW includes all required activities associated with disposing of MEC or explosively venting items.

#### 10.5.2.9 Scrap Disposal

This DFW includes all required activities associated with managing and disposing of scrap metal recovered during MEC operations.

#### 10.5.2.10 Demobilization

This DFW includes all required activities associated with demobilizing at the completion of the project.

**Table 10-1: Definable Features of Work for Project Activities**

<b>Task</b>	<b>Field Activities</b>
1	Pre-mobilization
2	Mobilization of equipment, supplies, and personnel to VNTR
3	Preparation of the work areas and staging areas
4	Setup of grids and survey monuments
5	Magnetometer operations, including setup of the Instrument Test Strip
6	Surface Grid Operations
7	MEC disposal operations
8	Demobilization
9	Reporting at project closure

10.5.3 THREE PHASES OF CONTROL (PROJECT)

The UXOQCS is to ensure that the three-phase control process, including the Preparatory Phase, Initial Phase, and Follow-Up Phase, is implemented for each DFW listed in this QC Plan. Each control phase is important for obtaining a quality product and meeting the task objectives; however, the preparatory and initial audits are particularly valuable in preventing problems. Production work is not to be performed on a DFW until a successful preparatory and initial phase has been completed. All applicable QC forms are provided in Appendix F.

10.5.3.1 Preparatory Phase

The Project Manager will notify the Contracting Officer or designated site representative at least two working days in advance of each preparatory phase. The Program QC Manager or UXOQCS will conduct the preparatory phase with the Operations Manager or SUXOS for the DFW. The Program QC Manager or UXOQCS will document the results of the preparatory phase actions in the daily Contractor QC Report.

The preparatory phase culminates with the planning and design process leading up to actual field activities. Successful completion of the Preparatory Phase verifies that the task order delivery, QC, and safety plans have been completed and are ready to be implemented. The following actions will be performed as applicable for each DFW:

- Confirm that the appropriate technical procedures are incorporated into the project work plan and review procedures.
- Confirm that adequate testing is called for to assure quality delivery.
- Confirm definition of preliminary work required at the work site and examine the work area to confirm required preliminary work has been properly completed.
- Confirm availability of required materials and equipment. Examine materials and equipment to confirm compliance with approved submittals and procedures. Ensure equipment testing procedures are in place, with control limits and frequency.
- Confirm qualifications of personnel and that their roles/responsibilities are well-defined and communicated.

- Confirm with the UXOSO that the site health and safety plan and activity hazard analyses adequately address the work operations and that applicable safety requirements have been incorporated into the plan.
- Discuss methods to be employed during the field activities.
- Confirm any required permits and other regulatory requirements are met.
- Verify that lessons learned during previous similar work have been incorporated as appropriate into the project procedures to prevent recurrence of past problems. Project staff must correct or resolve discrepancies between existing conditions and the approved plans/procedures identified by the UXOQCS and the team during the Preparatory Phase. The UXOQCS or designee must then verify that unsatisfactory and nonconforming conditions have been corrected prior to granting approval to begin work. Results of the activity are to be documented in the Preparatory Inspection Checklist (Form 10-2) specific for the DFW and summarized in the Weekly QC Report.

#### 10.5.3.2 Initial Phase

The Project Manager will notify the Contracting Officer or designated site representative when teams are ready to start work on a DFW. The Program QC Manager or UXOQCS will observe the initial segment of the DFW to ensure that the work complies with contract requirements and document the results of the initial phase in the Daily Contractor QC Report. The Program QC Manager or UXOQCS will ensure that teams repeat the initial phase when acceptable levels of specified quality are not being met.

The initial phase occurs at the startup of field activities that are associated with a specific DFW. The initial phase confirms that the Project QC Plan, other applicable work plan sections, and procedures are being effectively implemented and the desired results are being achieved. During the initial phase, the initial segment of the DFW is observed and inspected to ensure that the work complies with contract and work plan requirements. The initial phase should be repeated when acceptable levels of specified quality are not being met. The following shall be performed for each DFW:

- Establish the quality of work required to properly deliver the tasking in accordance with contract requirements. The UXOQCS ensures that supervision has made the work crew[s] aware of expectations associated with the field methods established under the preparatory phase.
- Resolve conflicts. Should conflicts arise in establishing the baseline quality for the DFW, the responsibility to resolve the conflict falls to the Project Manager. Should the conflict not be resolved in a manner that satisfies the project requirements, the UXOQCS must elevate the conflict to the program level (Program QC Manager) and issue a nonconformance report. The UXOQCS may direct a cessation of work activity, with the concurrence of the Program QC Manager, should the issue jeopardize the results of the DFW, or put the task at risk of non-compliant performance.
- Verify with the UXOSO that the SHSP and activity hazard analyses were developed to ensure that the identified hazards adequately addressed field conditions. Confirm that applicable safety requirements are being implemented during field activities. Upon completion of the initial phase activities, results are to be documented in the Initial Phase Inspection Checklist (Form 10-3), the QC logbook and summarized in the Weekly QC Report. Should results be unsatisfactory, the initial phase will be rescheduled and performed again.



#### 10.5.3.3 Follow-Up Phase

Completion of the initial phase of QC activity then leads directly into the follow-up phase that addresses the routine day-to-day activities on the field site. Inspection/audit activities associated with each DFW are addressed in Section 10.4. Specific concerns associated with the follow-up include:

- Inspection of the work activity to ensure work is in compliance with the contract and work plans.
- Evaluation and confirmation that the quality of work is being maintained at a level no less than that established during the initial phase.
- Evaluation and confirmation that required testing is being performed in accordance with procedures established during the preparatory phase and confirmed during the initial phase.
- Confirmation that non-conforming work is being corrected promptly and in accordance with the direction provided by the UXOQCS. To conduct and document these inspections, the UXOQCS is to generate the Follow-up Phase Inspection Checklist (Form 10-4). The follow-up phase inspections will be performed daily, or as otherwise identified in this QC Plan until the completion of each DFW.

The UXOQCS is responsible for on-site monitoring of the practices and operations taking place and verifying continued compliance with the specifications and requirements of the contract, task order, and approved project plans and procedures. He is also responsible for verifying that a daily Health and Safety Inspection is performed and documented as prescribed in the project SHSP. Discrepancies between site practices and approved plans/procedures are to be resolved and corrective actions for unsatisfactory and nonconforming conditions or practices are to be verified by the UXOQCS or a designee prior to granting approval to continue work. Follow-up inspection results are to be documented in the QC logbook and summarized in the Weekly QC Report.

#### 10.5.4 ADDITIONAL AUDITS

Additional audits performed on the same definable feature of work may be required at the discretion of the Program QC Manager or the UXOQCS. Additional preparatory and initial audits are generally warranted under any of the following conditions: unsatisfactory work, changes in key personnel, resumption of work after a substantial period of inactivity (e.g., two weeks or more), or changes to the project scope of work/specifications.

#### 10.5.5 FINAL ACCEPTANCE AUDIT

The Final Acceptance Inspection is performed, upon conclusion of the DFW and prior to closeout, to verify that project requirements relevant to the work are satisfied. Outstanding and nonconforming items are to be identified and documented on the Final Inspection Checklist (Form 10-5). As each item is resolved, it is to be noted on the checklist.

### 10.6 CONSTRUCTION TESTING

Analytical sampling and testing is not anticipated for the implementation of the work at VNTR. However, in the event that analytical sampling and testing is required, the following requirements will be implemented.

#### 10.6.1 TESTING LABORATORY REQUIREMENTS

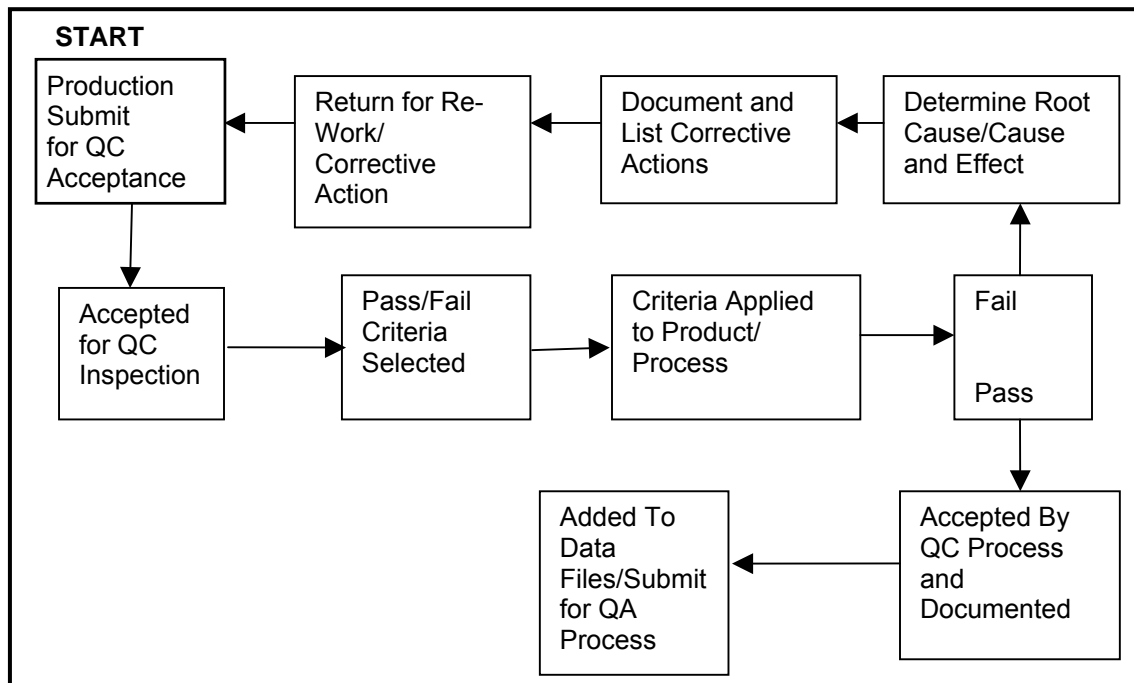
When required, an independent analytical laboratory qualified to perform sampling and analysis will be utilized. Laboratories performing work in connection with construction testing shall be certified to the methods specified by each contract task order. The Contracting Officer or designated site representative will be furnished a copy of the certificate of accreditation, scope of accreditation, and latest directory of the accrediting organization for accredited laboratories. The scope of the laboratory's accreditation shall include the test methods required. Any deviation from the above requirements must be approved in writing by the proper authority. On-site chemical analysis by mobile laboratories must be performed by laboratories certified by the United States Environmental Protection Agency (USEPA).

#### 10.6.2 ENVIRONMENTAL PROJECTS

Laboratories performing Installation Restoration Program work funded by Environmental Restoration, Navy (ER, N) (formerly Defense Environmental Restoration Account) or Base Realignment and Closure (BRAC) (ER, N eligible in the absence of BRAC funding) must successfully complete the Navy Laboratory Evaluation Program as detailed in the Navy Installation Restoration Chemical Data Quality Manual (IR CDQM), September 1999. Unless otherwise specified, field sampling and data validation should be performed in accordance with the NAVFAC Atlantic Project Procedures Manual and analytical testing shall be performed using current USEPA and QC procedures. Any deviation from the above requirements must be approved in writing by the Contracting Officer or designated site representative.

#### 10.7 FIELD QUALITY CONTROL INSPECTIONS, AUDITS, AND REPORTS

The UXOQCS is responsible for the accomplishment of operational checks of instruments and equipment utilized by site personnel. The appropriate log entries will be made detailing these checks. In addition to the implementation of the three phases of control process, inspections will be performed at random, with unscheduled checks of the site to ensure personnel accomplish all work as specified in the Work Plan. The UXOQCS will utilize the process outlined in Figure 10-1 (Quality Control Process), to ensure all field tasks meet quality standards prior to submittal for the QA process. The UXOQCS will submit a report to the Program QC Manager detailing the results of these checks. Any audits will be performed by the Project QC Manager.



**Figure 10-1: Quality Control Process**

#### 10.7.1 QUALITY CONTROL CERTIFICATIONS

The Program QC Manager will prepare a QC Report, Invoice Certification, and Completion Certification as necessary. These documents are submitted to the Program Manager for distribution to the appropriate personnel. The QC Report will include:

- The periodic assessment of work performed;
- Significant QA/QC problems and corrective actions taken;
- Work progress;
- Lessons learned, and change recommendations; and
- Signature of the Program QC Manager.

Note: The QC Report will contain the following statement: "On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report."

Completion Certification is issued upon completion of work under this task order, the Program QC Manager will furnish a certificate to the Contracting Officer or designated site representative attesting that "the work has been completed, inspected, and tested, and is in compliance with the contract."

#### 10.7.2 LOGS AND RECORDS

Activity Logs will be maintained daily as applicable, and all entries will be made in ink. Logbooks will be bound and pages consecutively numbered. Logbooks and records may be supplemented by the use of

preprinted forms (e.g., safety inspection forms, tailgate safety briefings). These forms help to ensure uniformity of activities being conducted, inspected, and reviewed. Daily operation forms and QC forms are located in Appendix F of this Work Plan. The following logbooks and records will be maintained on site and are subject to inspection.

#### 10.7.2.1 Daily Journal

The Daily Journal will be maintained by the SUXOS, and provides a summary of all operations conducted on site to include:

- Date and recorder of information;
- Start and end time of work activities, including lunch, breaks, and down time;
- Work stoppage;
- Visitors and escorts;
- Weather conditions;
- Changes to the Work Plan, SHSP, policies, or procedures;
- Injuries and /or illnesses;
- Safety briefings;
- MEC/UXO encountered;
- Disposition of MEC/UXO;
- Relevant events and training; and
- Signature of the SUXOS.

#### 10.7.2.2 Field Log Books

The Field Logbooks are maintained by the Supervisory Personnel. These logbooks are used to record site activities and field data. Logbooks are maintained in a neat and legible manner and provide a historical record of site activities, to include:

- Date and team location;
- Personnel and work performed;
- Equipment and instrument checks;
- Injuries and/or illnesses;
- Changes to work instructions;
- Work stoppage;
- Visitors;
- Other relevant events; and
- Signature of the SUXOS.

#### 10.7.2.3 Safety Log Book

The site UXOSO will maintain the Safety Logbook. This logbook is used to record all safety matters associated with the project site, including:

- Safety briefings and/or meetings;
- Training;
- Safety inspections and audits performed;
- Work stoppage due to safety issues;
- Visitors and escorts;
- Accidents, incidents, and near misses with corrective action taken;
- Site control measures;
- Other relevant events;
- Date and teams checked; and
- Signature of the UXOSO.

#### 10.7.2.4 Quality Control Logbook

The QC Logbook will be maintained by the UXOQCS. This logbook is used to record all QC matters associated with the project site, including:

- Equipment testing and results;
- QC inspections and audits performed;
- Work stoppage due to QC issues;
- Equipment monitoring results;
- Non-conformance reporting;
- Other relevant events;
- Date and teams checked; and
- Signature of UXOQCS.

#### 10.7.2.5 Training Records

Training records will be maintained by the SUXOS. These records contain any license, certificates, or other qualifying data, to include:

- Date and nature of training;
- Personnel attending and instructor(s);
- Visitor training and briefings; and
- Signature of the instructor and SUXOS.

#### 10.7.2.6 UXO Records

The UXO records are individually prepared records for each operating team. These records are prepared by the team supervisor, and are used to record data on UXO encountered. These records also include:

- Date and grid identifier;
- Identification of item(s) located;
- Classification of UXO;
- Type, condition, and location of any UXO encountered;
- Disposition of UXO;
- Number of items encountered;
- Other relevant data; and
- Signature of the SUXOS.

#### 10.7.2.7 Photographic Logbook

The Photographic Logbook will be maintained by the SUXOS. This logbook is used to record all photographs taken on the project site. These photographs are used to document MEC/UXO encountered, as well as site conditions before, during, and after operations. Photographs will include:

- Date and time taken;
- Unique identifying number(s) relating to the Photographic Logbook;
- Location photograph was taken from and direction looking; and
- Brief description of the subject matter.

### 10.8 DAILY REVIEW OF FIELD DATA

During daily field activities or at least once daily, the UXOQCS will review field data to ensure accurate classification and documentation of recovered MEC-related items. This review will allow for reconstruction of an item and whether or not its classification is correct.

#### 10.8.1 CLASSIFICATION OF MEC-RELATED ITEMS

To ensure accurate classification of MEC-related items (with respect to their explosive hazard), as the information is used to make decisions about the response action, USA will inspect suspect MEC and classify these items in accordance with Table 10-2. The list is not all inclusive, but reflects the types of MEC-related material that may be encountered at the project site. It is important to read the footnotes as they provide additional information of importance to understanding and classification of the MEC-related items.

**Table 10-2: Classification of MEC-Related Items**

Type of Material	Classification Following Inspection:					
	Presents Explosive Hazard (MEC)			Does Not Present Explosive Hazard		
	UXO	DMM (1)	MC (2)	MC (3)	Munitions Debris	Other
Used military munitions, on a range, fired	X				X	
Unused military munitions, on a range, apparently discarded		X			X	
Used military munitions, in a burial pit, on a former range	X(4)				X	
Unused military munitions, in a burial pit on a former range		X(4)			X	
Explosives in the soil			X(5)	X		
Target from a range (other than small arms range)	X(6)	X(6)	X(6)			X(7)
Remnants of munitions from a former range	X(8)	X(8)	X(8)		X(9)	

Footnotes:

1. Discarded Military Munitions (DMM): Munitions generally considered as DMM include: buried munitions; unrecovered kick outs from open detonations; munitions left behind or discarded accidentally during munitions-related activities; munitions intentionally disposed of without authorization during munitions-related activities. Munitions removed from storage for the purpose of disposal that are awaiting disposal are not DMM.

2. Munitions Constituents (MC): Constituents that are both (a) an explosive; and (b) present in sufficient concentrations to present explosive hazards.

3. MC that is either (a) not an explosive (e.g., lead, beryllium, and cadmium); or (b) an explosive not present in sufficient concentrations to present explosive hazards.

4. Although military munitions in a burial pit will normally be DMM, some may be UXO. For explosives safety reasons, munitions in a burial pit should be approached as UXO until assessed by technically qualified personnel (e.g., EOD personnel and/or UXO-qualified personnel) and determined that they are not UXO or that they do not present explosive hazards similar to UXO.

5. Explosive soil is typically found in sumps and settling lagoons for explosives-laden wastewater, and in and around drainage ditches and pipes that carry the wastewater to such sumps and lagoons.

6. A target is a type of range-related debris. Although a target is not MEC, it may contain UXO, DMM, or MC. Prior to its release from Department of Defense (DoD) control, its explosives safety status must be documented.

7. A target's explosive safety status must be documented and any demilitarization required to remove its military characteristics must be performed prior to its release from DoD control.

8. UXO, DMM, or MC may be found on operational ranges and on former ranges (previously referred to as closed, transferring or transferred ranges). An inspection of the material will determine into which category this material falls. For example, if a projectile breaks apart on impact, one could find (a) a sheared-off fuze, which would be UXO or (b) explosive filler, which would be MC that broke away from the projectile's open body. If during an open detonation of an unserviceable munitions that is conducted on an operational range, the donor charge detonates, but the munitions being destroyed breaks up, but does not detonate, the remnants of the munitions would be DMM or, if explosive residue (e.g., clumps of TNT), MC.

9. Fragments, while munitions debris, may be evidence of high explosive (HE) usage at the site. For such fragments, USA will indicate evidence of HE in its classification. After determination of its explosives safety status, scrap metal from used munitions on a range that is documented as safe would, after any demilitarization required to remove its military characteristics, be available for release from DoD control. In additions to these DoD requirements, other regulatory criteria may apply.

## 10.9 EMPLOYEE QUALIFICATIONS AND TRAINING

The Program QC Manager will review current personnel files on each employee at the project site. These files include copies of necessary licenses, training records, certificates of qualifications, and résumés that support the employee's placement and position. Prior to an employee's initial assignment or before any change in duties or assignment the Program QC Manager will review the employee's file to ensure necessary qualifications is met. UXO personnel must meet the qualifications as outlined in DDESB TP-18, dated 20 December 2004.

The PRI-USA JV ensures that only qualified and trained personnel are assigned to project sites. Prior to mobilization of personnel, PRI-USA JV ensures that training required by both PRI and USA and OSHA 29 CFR 1910.120 has been completed for all personnel assigned to the project. In addition, prior to the start of operations all personnel will receive the following:

- Familiarization with the Work Plan, and its policies and procedures;
- APP orientation and PPE training;
- Review of applicable Activity Hazard Analysis;
- Environmental considerations peculiar to the operations on the project site;
- Instruction and training on equipment usage and safe work practices; and
- Daily safety training outlining the day's activities.

Training is conducted by the SUXOS, UXOQCS, or UXOSO (as applicable) and records of attendance are maintained on site. Certificates of Training are issued when applicable.

## 10.10 EQUIPMENT TESTS, FUNCTIONAL CHECKS, CALIBRATION, AND MAINTENANCE

Instruments and equipment, such as geophysical/navigational, and data analysis and transfer systems, used to gather and generate site characterization data will be tested with sufficient frequency and in such a manner as to ensure that accuracy and reproducibility of results are consistent with the manufacturer's specifications. Instruments or equipment failing to meet the standard will be repaired, recalibrated, or replaced. Replaced instruments or equipment must meet the same specifications for accuracy and precision as the item removed from service.

Items such as cellular telephones and radios will be tested for serviceability at the start of each workday. Results of these tests will be recorded in the Daily Journal. Items failing these tests will be repaired or replaced prior to operations commencing.



#### 10.10.1 GEOPHYSICAL EQUIPMENT TESTS

USA proposes to use the following magnetometer for this project, the Schonstedt GA-52Cx. The user/operator's manual for this instrument will be provided on site.

Schonstedts (hand-held magnetometers) will be tested each workday prior to being placed into service. This test will include a functions check (described below), 360-degree spin check (described below), and the locating of selected anomalies within the test strip. Selected anomalies will be seed items that meet the size and depth requirements necessary to determine the serviceability of the instrument. Instruments failing this test will not be placed into service and will be repaired or replaced as directed by the SUXOS or UXOQCS.

Moving the on/off/volume/range selector switches through their various positions and determining their serviceability/functionality will accomplish a functions check. A 360-degree spin check will be accomplished by placing the instrument on the most sensitive setting, vertical, with the sensor (probe) down on an anomaly free area and slowly rotate the instrument 360 degrees while listening for a change in tone that would be equivalent to an known anomaly detection (e.g. selected seed item). If no equivalent tone occurs the instrument is considered serviceable and may be used for detection operations, if an equivalent tone is heard the instrument is considered non-serviceable and must be repaired or replaced. Personnel performing these checks must be as free of ferrous metal as possible to preclude interfering with the 360-degree spin check.

#### 10.10.2 MAINTENANCE

The UXOQCS will check field logbooks to ensure that maintenance of vehicles and equipment are performed on a regular schedule and in accordance with the manufacturer's recommendation or owner's manual for equipment requiring regular upkeep.

USA will coordinate scheduled maintenance of the following equipment (including GFE) in accordance with manufacturer recommendations or the owner's manual.

- Vehicles;
- PPE;
- Communications Equipment;
- Geophysical, Navigational Equipment, and PDAs;
- Hand-held magnetometers and all-metals locators;
- GFE; and
- Emergency Equipment.

Replacement equipment will meet the same specifications for accuracy and sensitivity as the equipment removed from service. Geophysical instruments will be checked on the test strip daily and after any repairs. They will be required to demonstrate a consistent detection rate for all seed items and any identified background anomalies. Repair or replacement of parts will meet the manufacturer specifications and recommendations. The Program QC Manager will document and maintain records pertaining to the testing, repair, and/or replacement of equipment on site.

Repair or replacement parts will meet the manufacturer's requirements and be installed by personnel authorized to replace parts or make repairs. Records pertaining to the testing, repair, or replacement of

instruments and equipment will be maintained on site by the Program QC Manager. Spare instruments of each type will also be mobilized to the site.

#### 10.10.3 ACCURACY

Control monument locations, boundaries of construction areas scheduled for clearance, and boundaries of cleared areas will be verified and certified by the Program QC Manager or the UXOQCS. The UXOQCS will additionally perform daily reviews of the MEC data to ensure accurate categorization of munitions-related items encountered and to ensure that all MEC items are accounted for.

GIS coverage will be evaluated by the Program QC Manager and UXOQCS to determine if the geographic features are correct. Errors found will be corrected and noted in the operations field logbook, as well as reported to NAVFAC Atlantic. The accuracy of grid corners will be to the closest 1.0 ft. A detected error will result in the data being examined and the correct location and place points will then be determined in the project GIS data set to represent identifiable elements of the feature (e.g., corners or intersections).

#### 10.11 DATA QUALITY OBJECTIVES

Data obtained during MEC operations must support the decision-making process. Consequently, data must be of a sufficient quantity and quality to make defensible decisions to provide an acceptable level of certainty for the decision maker(s).

##### 10.11.1 DQO PROCESS

The DQO process, as defined in USEPA QA/G-4W, *Data Quality Objectives Process for Hazardous Waste Site Investigations*, is iterative and is normally applied to operations requiring the application of data gathered as a result of the conduct of analytic sampling. The output from one step may lead to the reconsideration of prior steps. This iteration leads to more efficient design of data collection operations. Data users, relevant technical experts and members of the QC staff will participate in the DQO process planning to ensure that their specific needs are included prior to the data collection.

DQOs provide the objective basis for quantitative definition of project requirements. DQOs shall be developed and used to ensure that the amount, type, and quality of data obtained during a field sampling project are adequate to support project decisions with a known level of confidence.

The DQO process will include the following steps:

- State the problem;
- Identify the decision;
- Identify inputs to the decision;
- Define the study boundaries;
- Develop a decision rule;
- Specify limits of decision errors; and
- Optimize the design for obtaining data.

#### 10.11.2 SPECIFIC ANALYTICAL OR STATISTICAL DQOs

The following DQOs have been developed for the TCRA for the LIA MRSs:

Data Quality Objective 1 – Establish the Instrument Test Strip in accordance with Section 10.1.

- The test strip will be used to evaluate the operator's and instrument's ability to detect selected seed items within the test strip; and
- Once selected, the UXO Technicians will test the instruments daily before operations to ensure operability.

Data Quality Objective 2 – Conduct a 100% surface removal of MEC and MD over the proposed work site.

- The work site will be divided into 30 meter x 30 meter grids with 1.5-meter wide search lanes delineated for the UXO Technicians to systematically search the entire area for MEC; and
- The MEC will be identified by nomenclature, condition, and final disposition.

Data Quality Objective 3 – Conduct Quality Control inspections based on the definable features of work in Table 10-3.

- A lot will be comprised of 80 lanes, 1.5 meters wide by 30 meters X 30 meters long equivalent to four 30 meter by 30 meter grids; and
- Mil-Std-1916, Department of defense Test Method Standard, will be implemented for conducting QC inspections on completed lots (refer to Section 10.12.2 for inspection details)..

#### 10.12 QUALITY CONTROL METHODS AND PROCEDURES

This section discusses QC methods and procedures used during project operations. A standard operating procedure for QC surveillance will be provided on site.

##### 10.12.1 INSPECTIONS

PRI-USA JV will conduct inspections as a part of the Three-Phase Control Process to verify whether quality-related activities comply with this QC Plan. A list of inspections based on the DFWs is provided in Table 10-3. Internal inspections will address activities performed by USA. External inspections will address activities performed by project subcontractors, laboratories, and equipment and material suppliers.

The inspection program is established to provide the following:

- An objective and independent evaluation of compliance with established policies and procedures (Work Plan, Activity Hazard Analyses, Explosive Safety Submission, etc.)
- A mechanism for verifying the implementation of corrective actions recommended as the result of inspections

Personnel performing QC inspections will be knowledgeable about and have received training in QC techniques, methods, this QC Plan, applicable regulations, and will be technically knowledgeable related to the process being inspected. Inspections will be performed in accordance with written procedures or checklists. Personnel performing QC inspections will not have direct responsibilities in the areas they are assessing.

System and performance inspections will be undertaken. System inspections will evaluate the components of the QC system including evaluating items such as approach and adequacy of the preparation step, inspection of the schedules and plan delivery dates, and tracking systems for QC activities. Performance inspections evaluate actual QC activities such as design control, on-site data gathering, M&TE calibration and control, inspection and testing activities, and documentation.

Inspecting QC personnel will document inspection results, which will be reviewed by the Project Manager. When unsatisfactory or nonconforming conditions or items are found, the responsible organization will implement corrective actions in a timely manner. Previously unsatisfactory areas will be re-inspected to ensure that satisfactory corrective actions have been completed. The results of the inspections will be shared with the team with regard to needed rework and lessons learned.

Records of all inspections will be maintained and controlled as QC records.

**Table 10-3: Inspections**

Definable Feature of Work	Inspection
1. Pre-mobilization	<ul style="list-style-type: none"><li>• Ensure that the work to be performed is coordinated with Navy requirements and that a Notice to Proceed has been obtained from the Navy prior to the beginning of field activities.</li><li>• Verify that personnel required for the work activities have been identified, are available, and meet the requirements/qualifications for the positions or waivers from the Navy have been obtained.</li><li>• Confirm that personnel are properly trained and certified to operate equipment and machinery.</li><li>• Verify that all field personnel have reviewed the Removal Action Work Plan, this QC Plan, and the Site Health and Safety Plan.</li><li>• Ensure that all personnel have signed the Employee Signoff Forms for the Site Health and Safety Plan, and that all Activity Hazard Analyses have been completed.</li><li>• Confirm that the appropriate Material Safety Data Sheets have been identified and properly submitted.</li><li>• Confirm that required equipment has been identified and is available, on-hand, functional, properly calibrated, and appropriate for the work activities.</li><li>• Verify that materials and supplies are on-hand and meet contract specifications.</li><li>• Verify that all submittals have been approved by the proper authorities.</li></ul>

Definable Feature of Work	Inspection
2. Mobilization of Equipment, Supplies, and Personnel to VNTR	<ul style="list-style-type: none"> <li>Review staging areas for storage of wastes, recyclable materials, heavy equipment, and storage containers.</li> <li>Verify that equipment condition is acceptable and that features such as backup alarms and blast shields function properly.</li> <li>Verify that personnel are properly trained and certified to operate equipment and machinery.</li> <li>Ensure that personnel have proper personal protective equipment.</li> <li>Provide sufficient spare parts and equipment.</li> <li>Confirm and verify equipment delivery schedule and route as well as dangerous cargo regulations.</li> <li>Coordinate with personnel on VNTR.</li> </ul>
3. Preparation of the Work Areas and Staging Areas	<ul style="list-style-type: none"> <li>Review support facilities.</li> <li>Verify that work zones and signage have been properly established.</li> <li>Ensure that MEC surface screening is conducted in all work areas.</li> <li>Inspect the break and rest area.</li> <li>Inspect up staging areas for equipment and materials.</li> <li>Inspect engineered barriers.</li> </ul>
4. Setup of Grids and Survey Monuments	<ul style="list-style-type: none"> <li>Verify surveyor licenses, benchmarks, site boundaries, and field marking methods.</li> <li>Verify that survey monuments for installation of the grid system have been properly located and spaced.</li> <li>Verify the correct operation of differential global positioning system (DGPS) equipment.</li> <li>Check markings of grid corners.</li> <li>Ensure that a survey is conducted to establish site excavation and MEC clearance grids.</li> <li>Verify that survey markers or sticks are placed to identify all grid corners and the total depth of excavation at each grid.</li> <li>Verify that survey results are recorded.</li> </ul>
5. Magnetometer Operations	<ul style="list-style-type: none"> <li>Inspect the setup of the instrument test strip and applicability of items included.</li> <li>Confirm the process employed for daily testing of magnetometers.</li> <li>Inspect the certification and operational procedures for magnetometers.</li> <li>Observe the acquisition of items in the instrument test strip.</li> </ul>

MUNITIONS REMOVAL ACTION WORK PLAN  
LIVE IMPACT AREA - FORMER VIEQUES NAVAL TRAINING RANGE  
VIEQUES ISLAND, PUERTO RICO

Definable Feature of Work	Inspection
	<ul style="list-style-type: none"> <li>Inspect the implementation of pass/fail criteria for each grid.</li> <li>Review the procedures for handling an anomaly.</li> <li>Observe and check records and data recording forms for completeness.</li> </ul>
6. Surface Grid Clearance	<ul style="list-style-type: none"> <li>Ensure that MEC support (personnel, equipment, and safety barriers [if required]) is standing by to support site activities.</li> <li>Verify team safe separation distances.</li> <li>Inspect for safe installation of engineered barriers.</li> <li>Ensure that all health and safety equipment and supplies have been mobilized to the operations area.</li> <li>Verify that proper equipment is used.</li> </ul>
7. MEC Disposal and MD Operations	<ul style="list-style-type: none"> <li>Confirm the explosives routes from the Magazine.</li> <li>Determine whether any road closures are necessary.</li> <li>Ensure that vehicle and transportation requirements for the transport of explosives are met.</li> <li>Verify that stocking and storage procedures for explosive materials are followed.</li> <li>Verify the procedures for selection of the amount of donor charge.</li> <li>Verify the location of ordnance or suspect ordnance items if not blown-in-place the same day.</li> <li>Review the Standard of Practice regarding collection and inspection procedures.</li> <li>Confirm that all suspect ordnance-related material, including ordnance scrap, will be properly treated.</li> <li>Verify the proper documentation of all MEC, MPPEH, MD, and other recovered ordnance-related items.</li> <li>Verify that, following treatment, proper certification is provided on the scrap.</li> <li>Verify approach to disposal of treated scrap.</li> <li>Ensure net weight explosive in Magazine does not exceed limits.</li> </ul>
8. Grid Restoration and Demobilization	<ul style="list-style-type: none"> <li>Confirm that all temporary site features and equipment and debris have been removed for the purpose of restoring the grids.</li> <li>Ensure that a final site walk-through with NAVFAC Representative personnel is scheduled and conducted.</li> <li>Ensure that punch-listed items from the final site walk-through are implemented.</li> <li>Ensure that all documentation is signed by responsible parties.</li> <li>Ensure the coordination of equipment shipping and storage</li> </ul>

Definable Feature of Work	Inspection
	(including GFE),prior to demobilization
9. Reporting at Project Closure	<ul style="list-style-type: none"><li>Ensure that the MEC After-Action Report is prepared, reviewed, and submitted.</li></ul>

#### 10.12.2 QUALITY CONTROL METHODS

Mil-Std-1916 will be used to determine the level of Quality Control inspections using the following criteria:

- A lot will be comprised of 80 lanes, which are defined as 1.5 meters wide by 30 meters long. This is the equivalent number of lanes for four 30 meters by 30 meters grids and is approximately 0.9 acre in area.
- The initial Verification Level (VL) will be "VII" for attributes sampling;
- Table 10-4, Mil-Std-1916 Table I excerpt, will be used to determine the Code Letter (CL) for entry into the sampling table (Table 10-5, Mil-Std-1916 Table II)
- Table 10-5, Mil-Std-1916 Table II will then be used to determine the sample size based on the CL and VL; and
- The switching method will be accomplished as described in Table 10-5, note 2.

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**Table 10-4: MIL-STD-1916 Table I<sup>2</sup>**

Lot or Production Interval Size	Verification Levels						
	VII	VI	V	IV	III	II	I
2-170	A	A	A	A	A	A	A
171-288	A	A	A	A	A	A	B
289-544	A	A	A	A	A	B	C
545-960	A	A	A	A	B	C	D
961-1632	A	A	A	B	C	D	E
1633-3072	A	A	B	C	D	E	E
3073-5440	A	B	C	D	E	E	E
5441-9216	B	C	D	E	E	E	E
9217-17408	C	D	E	E	E	E	E
17409-30720	D	E	E	E	E	E	E
30721 and larger	E	E	E	E	E	E	E

**Table 10-5: MIL-STD-1916 Table II<sup>3</sup>**

Code Letter	T	VII	VI	V	IV	III	II	I	R
				Sampling size (Ng)					
A	3072	1280	512	192	80	32	12	5	3
B	4096	1536	640	256	96	40	16	6	3
C	5120	2048	768	320	128	48	20	8	3
D	6144	2560	1024	384	160	64	24	10	4
E	8192	3072	1280	512	192	80	32	12	5

NOTES:

(1) When the lot size is less than or equal to the sample size, 100 percent attributes inspection is required.

(2) One verification level (VL) to the left/right of the specified normal VL is the respective tightened/reduced plan. Tightened inspection of VL-VII is T, reduced inspection VL-I is R.

Based on the initial Lot size (80 lanes) and assumed VL of "VII", the CL for entry into the sampling tables using Table I is "A". Using the CL from Table I and the assumed VL, the sampling size is 1280 (Table 10-5, column VII). AS indicated in note one of Table 10-5, when the lot size is less than the sample size, 100% of the lot must be inspected.

<sup>2</sup> MIL-STD-1916 Department of Defense Test Method Standard, Table I, 1 April 1996

<sup>3</sup> MIL-STD-1916 Department of Defense Test Method Standard, Table II, 1 April 1996



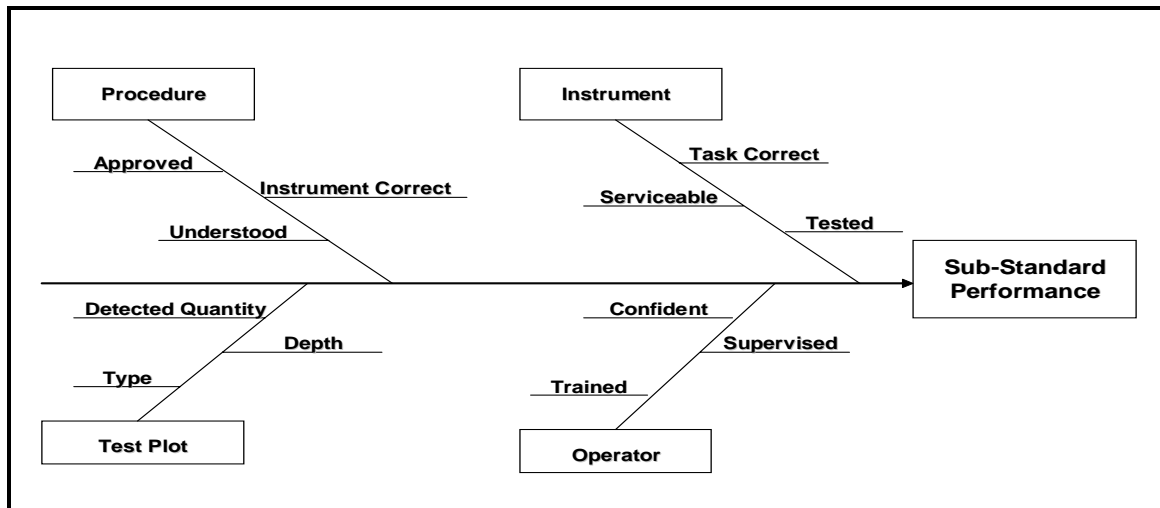
The tightening and loosening process will be used every 10 lots to reduce or tighten the QC inspections as required by changing the VL as shown in Table 10-5. This project involves only 50 lots, therefore if lots 1-40 pass the QC inspection process; the last 10 lots will be sampled under VL III, CL A which prescribes that 32 of the 80 lanes be inspected. Should this occur, a random number generator will be utilized to select 32 of the 80 lanes for inspection.

#### INVESTIGATION FAILURE CRITERIA

A grid failure will occur if, during the conduct of the QC survey of any grid:

- more than 2 munitions items which have a shape, size, or mass greater than or equal to a 20mm and less than a 30mm projectile is not removed from a grid,
- more than 1 munitions item which has a shape, size, or mass greater than or equal to a 30mm and less than a 40mm projectile is not removed from the grid, or
- any munitions item, which has a shape, size, or mass equal to or greater than a 40mm projectile is not removed from the grid

Any failure will result in a complete re-work of the entire failed grid and will initiate a cause and effect analysis to determine what the root cause of the failure is and to correct the problem. Figure 10-2 below illustrates the flow of the root cause and effect process.



**Figure 10-3: Cause and Effect Process**

#### 10.13 CONTINUOUS IMPROVEMENT PROGRAM

A Continuous Improvement Program will be maintained on-site. It will include the following actions:

- The UXOQCS will solicit on a weekly basis lessons learned from on-site personnel;
- The Operations Manager, Program Quality Manager, UXOQCS, and SUXOS will review lessons learned for appropriateness;
- Recommendations for improvements to the work process will be forwarded to the Program Manager; and

- Upon review and approval by the Program Manager, recommendations for improvement will be forwarded to the Contracting Officer or designated site representative for consideration.

#### 10.14 CORRECTIVE ACTION REQUESTS

A Corrective Action Request (CAR) (Form 10-8) can be issued by any member of the project staff, including the Contractor and subcontractor employees. If the individual issuing the CAR is also responsible for correcting the problem, then he or she should do so and document the results on Part B of the CAR. Otherwise, the CAR should be forwarded to the Project Manager, who is then responsible for evaluating the validity of the request, formulating a resolution and prevention strategy, assigning personnel and resources, and specifying and enforcing a schedule for corrective actions. Once a corrective action has been completed, the CAR and supporting information are to be forwarded to the UXOQCS for closure.

In addition to observing actual work operations, CARs are to be reviewed during follow-up QC inspections. The purposes of this review are: to ensure that established protocols are implemented properly; to verify that corrective action commitments are met; to ensure that corrective actions are effective in resolving problems; to identify trends within and among similar work units; and to facilitate system root cause analysis of larger problems. Particular attention is to be given by the QC staff to work units that generate either an unusually large or unusually small number of CARs.

The UXOQCS will determine whether a written Corrective Action Plan (CAP) (Form 10-9) is necessary, based on whether or not any of the following are met: the CAR priority is high; deficiency requires a rigorous corrective action planning process to identify similar work product or activities affected by the deficiency; or deficiency requires extensive resources and planning to correct the deficiency and to prevent recurrence. The CAP is developed by a Project Manager designee and approved and signed by the Project Manager. The CAP is to indicate whether it is submitted for informational purposes or for review and approval. In either event, operational staff is to be encouraged to discuss the corrective action strategy with the QC staff throughout the process.

#### 10.15 LESSONS LEARNED

The objective of capturing lessons learned is to share experiences or recognized potential problems or identify best practices to:

- Prevent the recurrence of repetitive design/execution deficiency;
- Clarify interpretation of regulations or standards;
- Reduce the potential for mistakes in high risk/probability areas of concern;
- Pass on information specific to an installation or project;
- Promote a good work practice that should be ingrained for repeat application; and
- To promote efficient and cost effective business practices.

#### 10.16 TEAM RESPONSIBILITIES

PRI-USA JV project team will be responsible for identifying and submitting lessons learned for review and approval. Throughout this MEC response activity, PRI-USA JV project team members will consider how their experiences might be appropriate for future efforts.

## **11.0 ENVIRONMENTAL PROTECTION PLAN**

Refer to Chapter 11 of the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

*This space is intentionally left blank.*

## **12.0 INVESTIGATIVE DERIVED WASTE PLAN**

Refer to Chapter 12 of the TCRA/IM Work Plan (NAVFAC ATLANTIC, 2005).

*This space is intentionally left blank.*

### **13.0 INTERIM HOLDING FACILITY SITING PLAN**

The Interim Holding Facility Siting Plan is not applicable to this Munitions Removal Action.

*This space is intentionally left blank.*

#### **14.0 PHYSICAL SECURITY PLAN**

The Physical Security Plan is not applicable to this Munitions Removal Action.

*This space is intentionally left blank.*

## 15.0 REFERENCES

The following are references applicable to this project however are not all-inclusive. PRI-USA JV will comply with applicable Federal, State, the commonwealth, and local requirements. Following all applicable requirements and regulations listed in the following publications will ensure the safety and health of on-site personnel and the local community.

### 15.1 ARMY REGULATIONS AND PAMPHLETS

- AR 190-11, Physical Security of Arms, Ammunition and Explosives.
- AR 385-64, Army Regulation Ammunition and Explosive Safety.
- Army Regulation 385-64 with USACE Supplement 1, Accident Reporting and Records.
- Department of the Army Pamphlet Ammunition and Explosive Standards, paragraph 2-4.
- Department of Defense Publications
- DOD 4160.21-M-1 Defense Demilitarization Manual.
- DOD 6055.9-STD, Ammunition and Explosive Safety Standards.

### 15.2 FEDERAL REGULATIONS

- AFTP 5400.7 Bureau of Alcohol, Tobacco, Firearms, and Explosives Federal Explosive Laws and Regulations.
- DOT Regulations, 49 CFR Parts 100-199.
- Endangered Species Act 16 U.S.C. 1531-1544.
- National Historic Preservation Act (NHPA), Public Law 93-91 Army Regulation (AR) 385-64, Ammunition and Explosives Safety.

### 15.3 OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

- Occupational Safety and Health Administration (OSHA) 1994 General Industry Standards, 29 CFR 1910 and Construction Industry Standards, 29 CFR 1926; especially 1910.120/29CFR 1926.65-Hazardous Waste Site Operations and Emergency Response.
- NIOSH/OSHA/USCG/EPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985. (DHHS (NIOSH) Publication No. 85-95). AR 190-11, Physical Security of Arms, Ammunition and Explosives.

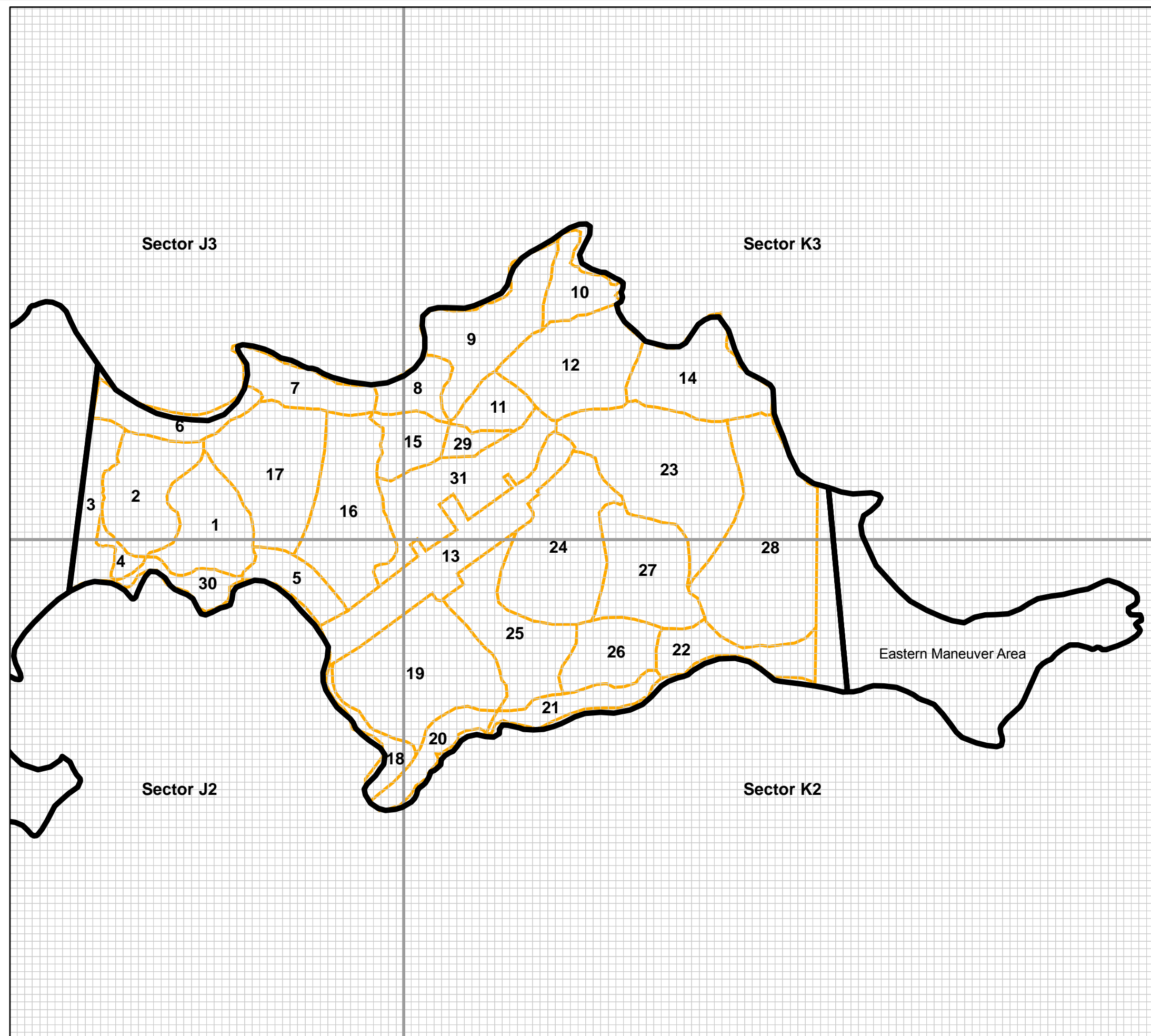
### 15.4 USACE PUBLICATIONS

- U.S. Army Corps of Engineers Safety and Health Requirements Manual. Engineer Manual 385-1-1, (3 NOV 03).
- U.S. Army Corps of Engineers (USACE), Washington, DC. 2000. Engineer Pamphlet 385-1-95a, Basic Safety Concepts and Considerations for Ordnance and Explosive Operations, 29 June 2001.
- U.S. Army Corps of Engineers (USACE), Washington, DC. 2000. Engineer Regulation 385-1-92, Safety and Occupational Health Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities, 01 Sep 2000.

15.5 OTHER

CH2MHILL, 2005. *Time Critical Removal Action/Interim Measures Work Plan, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico*. March 2005.





400 200 0 400  
Meters

Data is projected to the UTM Coordinate System:  
Zone 20, NAD83, Units in Meters.

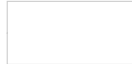



**Munitions Removal Action  
Live Impact Area and  
Eastern Conservation Area**

## Figure B-2

### Site Map

NASD, Vieques Island, Puerto Rico

### Legend

-  Grids
-  Sectors
-  Munitions Response Sites
-  Vieques Island Boundary

*USA*  
*Environmental, Inc.*

**Project  
Resources, Inc.**

Drawn By: WAC/ JAL Scale: 1" = 400 m Rev: 1

Checked By: Date Drawn: 8-16-2006

Submitted By: RH Revision Date: 9-18-2006



Path:  
S:\Vieques\LIA\Site map.mxd



## **APPENDIX A**

### **A.0 STATEMENT OF WORK**

This appendix contains a copy of the Statement of Work, dated 28 July 2006, for the Munitions Removal Actions at the Live Impact Area in the Former Vieques Naval Training Range, located on Vieques Island, Puerto Rico.

## Section C - Descriptions and Specifications

SOW

## Section C

28 July 2006

**Statement of Work**

Munitions Removal Actions at Munitions Response Sites Located within the Munitions Response Areas (MRA) LIA  
– (Live Impact Area) and ECA – (Eastern Conservation Area)

Former Vieques Naval Training Range, Vieques Island, Puerto Rico

1.0 **OBJECTIVES:** The Contractor shall provide the personnel, equipment, materials, and management to respond to multiple Munitions Removal Actions, as specified in this Task Order, at various sites within the property boundaries of the Former Vieques Naval Training Range. Specific categories and objectives of work include, but are not limited to:

- 1.1 The contractor shall perform Munitions of Explosives Concern (MEC) surface removal actions as necessary to reduce worker, public, and law enforcement exposure to unexploded ordnance and other types of munitions found on the surface. The surface removal will be limited to only that UXO, MPPEH and MD, either in whole or in part, visible at the surface.
- 1.2 The removal and disassembly of large targets and large metallic target debris will be performed by the Range Scrap Management Contractor.
- 1.3 MEC is a safety hazard and may constitute an imminent and substantial danger to site management personnel and others. The contractor shall safely locate, identify, recover, evaluate, demilitarize, manage, and store MEC, and other ordnance related scrap, at the Former Vieques Naval Training Range (VNTR), Vieques, PR that is currently being managed as a wildlife and wilderness area by the U.S. Department of Interior's Fish and Wildlife Service (FWS).
- 1.4 MEC removal actions will be conducted at Munitions Response Sites (MRSs) located in the Former VNTR Live Impact Area (LIA) and Eastern Conservation Area (ECA). UXO support for UXO Avoidance, UXO assessment, and identification may be required at other locations within the Surface Impact Area (SIA) and Eastern Maneuvering Area (EMA).
- 1.5 Technical plans for conducting work will be completed prior to implementing the removal activities and a report documenting the completed removal activities (After Action Report) will be generated as a record of work completed at the Former VNTR.
- 1.6 Data will be maintained in an electronic database format compatible with NAVFAC Atlantic operating systems and software. It is expected that the data format will allow for NAVFAC Atlantic project personnel to easily view and search site data. The data will be compiled as part of the Administrative Record for Vieques. The database and collection format will be provided to the Contractor by NAVFAC Atlantic.

2.0 **PLANS:** In addition to other plans described in this Statement of Work, the contractor shall provide the following submittals to the Contracting Officer and/or NAVFAC Remedial Project Manager. Additional copies of submittals shall be sent directly to the on-site Navy Representatives and Title II Construction Manager., as applicable (dates will be specified in the Task Order):

- A. Health and Safety Plan
- B. Site Specific Quality Control Plan

- C. Waste Management Plan
- D. Instrument/Equipment Testing, Inspection, Calibration, and Maintenance Plan
- E. MEC After Action Report
- F. Emergency and Hazardous Chemical Inventory Forms
- G. MEC Monthly Progress and Production Reports
- H. Monthly Invoicing Reports
- I. MEC Surface Removal Plan
- J. Equipment, Personnel, and Supply Logistics Plan
- K. Any additional MEC type plans required per Navy safety and regulatory requirements.
- L. MEC Removal and Management Project Schedule
- M. MEC Avoidance Plan

The work plans shall at a minimum meet the requirements of the following documents. Any deviations from the requirements of these documents must meet prior approval from the Navy NTR.

*Final Time Critical Removal Action/Interim Measures Work Plan, Surface Munitions and Explosives of Concern at Munitions Response Area-Eastern Conservation Area and Munitions Response Area-Live Impact Area: Munitions Response Sites 1 through 8, 13, 15 through 20, and 29 through 31, Former Vieques Naval Training Range (VNTR) Vieques, PR (CH2M HILL March 2005)*

*Final Time Critical Removal Action/Interim Measures Work Plan Amendment, Surface Munitions and Explosives of Concern at Munitions Response Area-Eastern Conservation Area and Munitions Response Area-Live Impact Area: Munitions Response Sites 9 through 12, 14, and 21 through 28, Former Vieques Naval Training Range (VNTR) Vieques, PR (CH2M HILL July 2006)*

*Draft-Final Explosives Safety Submission, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico (CH2M HILL July 2006)*

*Final Explosives Operations Site Approval, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico (CH2M HILL March 2004)*

### 3.0 PERSONNEL AND TRAINING REQUIREMENTS:

3.1 Review of Resumes: The Government reserves the right to review the resumes of and interview Contractor employees performing under the contract solely for the purpose of ascertaining their qualifications relative to the personnel qualification terms of the contract. Accordingly, the Contractor shall furnish such resumes to the Contracting Officer and NAVFAC Remedial Project Manager upon request. A priority for employing local resource pool of UXO Tech 1's and Range Sweepers trained by NAVFAC shall be made and demonstrated by the contractor.

3.2 Contractor Work Force Responsibility: Organize, furnish, maintain, supervise, and direct a workforce who is thoroughly capable and qualified to effectively perform the work set forth in the contract. The Contractor is responsible for ensuring that staff planning fieldwork and collecting MEC and environmental data are properly trained in data collection procedures and are familiar with and use established sample collection procedures in order to ensure that the data collected meet the Data Quality Objectives for the phase of work at a particular site.

3.3 Program Management: The contractor shall designate a program manager, meeting the requirements of "project manager" in accordance with DID OE-025.02 and the requirements specified in the contract requirements for the overall contract who provides a single point of contact for the Contracting Officer and/or NAVFAC Remedial Project Manager, and provides support to NAVFAC Atlantic Remedial Project Manager and other designated government representatives. The program manager shall have the authority and be able to address overall management, technical, and contracting issues. Typical qualifications: BA/BS degree in engineering, geology, or other related science and 4-7 years of applicable MEC and environmental remediation management experience; has necessary health and safety training. A program manager with over 10 years UXO Management and Supervisory Experience of complex UXO sites may be substituted for the qualification requirements specified above. The substitution requirements shall be reviewed and approved by the NAVFAC Remedial Project Manager on a case by case basis. The program manager has the responsibility for managing entire MEC remediation projects, estimating costs within the project and controlling project budgets. The program manager identifies and develops approaches

for effective and efficient site remediation efforts and serves as on-sight technical expert and project coordinator. The program manager is also responsible for analyzing and interpreting data, and preparing management and technical sections of reports. The program manager is responsible for supervising the work of lower level professional and technical staff. Field hours are normally limited to periodic site visits. In summary, the program manager is responsible for the following:

- » Project management
- » Report review
- » Report preparation
- » Develop and oversee project budget
- » Data review and analysis
- » Field work planning
- » Work plan preparation
- » On-site direction, coordination, and management
- » Coordinate with agency, client, and subcontractors
- » Equipment specification review, selection, and design
- » Periodic site inspection
- » Acquire site access and logistical arrangements and site communications

**3.4. Mid-level Professional Project Manager.** The contractor shall execute each task under the direction of a project manager (PM) in accordance with DID OE-025.02 who shall ensure that all work is accomplished with adequate internal controls and review procedures to eliminate conflicts, errors, and omissions and ensure accuracy of all output. The contractor PM shall coordinate all administrative and cost accounting details and coordination activities. This position is not considered the technical lead position. The contractor PM shall coordinate with the Government Remedial Project Manager and other government representatives and the Title II Construction Manager to gather appropriate project information and references, scheduling, points of contact, right-of-entry requirements, area wide clearances, resolution of technical difficulties, conferences, and project status. Typical qualifications: mid-level position; BA/BS degree in engineering, geology, or other related science and 2- 5 years of applicable experience; has necessary health and safety training. The substitution of UXO technical and management experience may be substituted for above requirements upon review and approval by the Contracting Officer and/or NAVFAC Remedial Project Manager. Implements field work, gathers technical and MEC geophysical and surface MEC information, prepares cost estimates for project sub-tasks, work plans, and reports (IA, SCR, CAP, etc.), provides on-site technical support, typically works under supervision when performing complex analyses and tasks related to remediation system design, may supervise lower level professionals and technical personnel during drilling or site remediation activities (over-excavation, tank removal, etc.). A substantial number of hours are typically for fieldwork. Other responsibilities include:

- Report preparation
- Fieldwork preparation and planning
- Monitoring activities
- Site reconnaissance and mapping
- Supervise MEC surface and subsurface removal and other on-site remediation activities
- Waste characterization
- Acquire site access and logistical arrangements and site communications.
- Assists in geophysical acquisition and interpretation
- Assist in modeling and data analysis
- On-Site coordination between subcontractors, Title II Construction Manager, and government representatives

#### 4.0 GENERAL REQUIREMENTS:

**4.1 MEC Removal Actions.** This Contract Task Order includes the time-critical removal of MEC from the ground surface and management of MEC. Additionally, the contractor is responsible for removal of MD and RRD

that is greater than 2" X 2" inches in size. Where applicable the contractor will perform this work in accordance with the Department of Defense regulations and guidance, Defense Environmental Restoration Program (DERP), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Contingency Plan (NCP), Resource Conservation and Recovery Act (RCRA), and comply with other applicable laws and regulations. The contractor shall, according to this scope of work, conduct appropriate field surveys, site visits, prepare required health and safety plans, execute removal actions, and final on-site storage of UXO, MPPEH, MD, and RRD. The contractor will conduct such work with a primary emphasis on assisting NAVFAC Atlantic in compliance with MEC and environmental laws and regulations. The work may involve working with other contractors affiliated with site inspections, emergency response plans, public coordination, and other MEC and environmental studies.

Where appropriate the following guidance documents will apply to the activities described in this statement of work:

DoD 6055.9-STD, Ammunition and Explosives Safety Standards.

DoD 4165.26-M, DoD Contractors Safety Manual for Ammunition and Explosives.

DoD 4160.21-M, Defense Materiel Disposition Manual.

DoD 4160.21-M-1, Defense Demilitarization and Trade Security Control Manual.

NAVSEA OP 5 Volume 1, Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation, and Shipping.

OPNAVINST 5530.13, Department of the Navy Physical Security Instruction for Sensitive Conventional Arms, Ammunition, and Explosives.

OPNAVINST 5090.1, Environmental and Natural Resources Protection Manual.

OPNAVINST 8020.14, Department of the Navy Explosives Safety Policy.

NOSSAINST 8020.15, Military Munitions Response Program Oversight.

USACE ER 1110-1-263, Chemical Data Quality Management for Hazardous Waste Remedial Activities.

USACE EP 1110-1-17, Establishing a Temporary Open Burn and Open Detonation Site for Conventional MEC Projects.

USACE EP 1110-1-18, Ordnance and Explosives Response.

USACE EP 75-1-3, Recovered Chemical Warfare Materiel (RCWM) Response.

USACE EP 385-1-95a, United States Army Engineering and Support Center – Huntsville (USAESCH) Mandatory Center of Expertise (MCX), Basic Safety Concepts and Considerations for OE Operations.

USAESCH OE MCX Data Item Descriptions.

USAESCH Interim Safety Alerts.

Bureau of Alcohol, Tobacco, and Firearms (BATF) ATF P 5400.7, Explosives Law and Regulations.

Where applicable other guidance (in whole or in part) may apply to this statement of work and should be identified in the task order.

4.2 HTRW/ CWM Management: In the unlikely event that during the MEC removal, the contractor encounters Hazardous, Toxic, and Radiological Waste (HTRW) or Chemical Warfare Materiel (CWM) the following shall apply:

HTRW material may be encountered in containers, landfills, open burn/open detonation areas (OB/OD), ground spills, surface water, or groundwater. If suspected HTRW of unknown origin and nature is encountered the contractor shall immediately notify the NAVFAC Atlantic Contracting Officer and Project Manager. The contractor shall take necessary actions to protect the safety of his workforce, the public, and the environment.

During conventional MEC operations, if the contractor identifies or suspects CWM, the contractor shall immediately withdraw upwind from the work area and notify the appropriate personnel as identified in this task order. The contractor shall secure the area as soon as practicable.

All targets will be screened for depleted uranium (and other radiological materials) and all fluids removed and containerized. Targets will be stockpiled at a designated area for decontamination and demilitarization. After which targets will be containerized as appropriate.

4.3 Permitting/Licenses. Although the site is a CERCLA site and is exempt from permits, the contractor shall meet the substantive requirements for the permits and licenses necessary to conduct his operations including, but not limited to, building permits, licenses to purchase explosives, blaster's licenses, and Department of Transportation (DOT) permits for transport of MEC and HTRW on public highways. All permit acquisition and requirements will be coordinated with the Government personnel, unless specifically necessary for the operations of the contractor.

4.4 Accident Prevention Plan. All work under this contract shall be in accordance with the applicable publications specified in this statement of work (SOW). The contractor shall develop and provide the Navy an accident prevention plan using the following as guidance for format and content: DID MR-005-01 and MR-005-06.

4.5 Quality Management. The contractor is responsible for the control of product quality and for offering to the Government for acceptance only those products/services that conform to contractual requirements. Site-specific quality control plans shall be prepared using the following guidance DID MR-005-11 and DoD Mil-Std-1916 (1 April 1996).

#### 5.0 OTHER REQUIREMENTS:

During the progress of work, the contractor may be called upon by the Government or Title II Construction Manager to produce preliminary study data and information that is deemed necessary to satisfy Government needs. The Contractor shall provide data from this project to the extent that such requests do not detract from the contractual objectives of the work.

The contractor is responsible for conducting a site visit to verify the assumed site conditions prior to submitting the fee proposal.

The contractor shall be responsible for accuracy and validity of data. In the event of controversy or court challenge of the report(s), the contractor may be required to testify on behalf of the Government in support of report(s) findings.

The contractor shall be expected to thoroughly review all sources of information pertinent to the objective analysis of the work tasks specified in this SOW. The report presenting results of the Munitions Response Action and execution of the response action shall be done in an objective and dispassionate manner delineating fact and opinion. Interpretation shall be presented as arguments clearly identifying assumptions, premises, biases, and logic. Hypotheses shall be identified as such. All technical terms used in the report shall be defined. Concise, but complete descriptions detailing the data, methods, conclusions, and recommendations shall be based on professional judgments of recognized experts in their field of research.

All personnel conducting work on a DERP site or hazardous/toxic waste site shall have the appropriate training, personal protection, and safety course as specified by CFR 1910.20 and any other applicable requirements.

The contractor, when appropriate, will coordinate with the Title II services contractor, Navy CLEAN contractor, and any other on-site contractors to determine if subcontractor services can be provided by currently mobilized subcontractors to maximize cost and efficiency.

## 6.0 SPECIFIC SCOPE OF WORK.

The initial work area for this scope of work will be designated by NAVFAC; however, based on continuously changing site conditions, NAVFAC may request the contractor to relocate removal action team(s) to achieve a more efficient clearance of the LIA and ECA as conditions change.

6.1 Project Management Tasks. The following project management tasks will be conducted as part of this SOW.

**Progress Meetings.** Two monthly progress meetings will be held during each month of project duration. One of the monthly progress meetings will be conducted via conference call over a one hour duration. For the other monthly progress meeting, the contractor PM or other identified person familiar with the data and day-to-day operations being conducted will attend the meeting to be held in Norfolk, Virginia (or vicinity). The meeting is anticipated to be hour hours in duration. NAVFAC Atlantic personnel and the Title II Construction Manager will attend these meetings. The progress meetings will cover a variety of topics not limited to: the progress of work at the Former VNTR, cost issues, reporting, upcoming activities, strategic planning, technical issues, and technical management.

**Weekly Reports/Status Meetings.** Two weekly meetings will be held to discuss the status of work being conducted by the contractor. One meeting will be held via conference call and will be approximately 2 hours in duration. The other meeting will be approximately 2 hours in duration and will be held on Vieques with the Navy on-site representative and the Navy contractors. The meetings shall be attended by the contractor PM or other identified persons familiar with the data and day-to-day operations.

**Monthly Report.** A monthly progress report will be prepared to provide a summary of the production for the month and present all the technical information that will serve as a backup for the monthly invoices. The monthly report shall include a comparison of the projected production schedule from the contract to the actual production schedule. In addition, items to be provided in the progress report will include: quantity of MD processed for the month (in tons), quantity of RRD processed, quantity of scrap sheared, quantity of scrap processed through furnace, quantity of scrap shredded, number of acres surface cleared of vegetation, number of acres surface cleared of MEC, number of days of surface clearance.

**Pre-Construction Meeting.** Prior to the initiation of field effort described in this SOW a pre-construction meeting will be held in Vieques, Puerto Rico. The meeting will be conducted to discuss the implementation of the work plan for the surface removal action. This meeting should be attended by the contractor PM and field supervisory staff. The meeting will be one day in duration. The agenda for the pre-construction meeting will be provided by the contractor to NAVFAC one week prior to the meeting.

6.2 Vegetation Removal. Prior to removal of UXO, MPPEH all grass and brush will be cut using manual methods to allow for a magnetometer assisted surface sweep to effectively remove all remaining surface UXO and DMM greater than 20mm in size; and MPPEH MD, and RRD that exceeds 2" x 2" in size. No operator equipped mechanical brush cutting will be allowed. There are varying types of vegetation across the LIA and ECA. The level of effort required to remove various "levels" of vegetation should be considered when developing costs and schedules to complete this scope of work. The contractor should determine the various vegetation categories and what factors for each of those categories will contribute to a cost and schedule difference. A "scale" of costs and schedules for the categories of vegetation clearance should be presented in the contractor proposal as described in the FEE PROPOSAL AND PRICE BREAKDOWN Section of this SOW.

6.3 Surface Removal. A surface removal action (UXO, MPPEH, DMM, MD, and RRD) will be completed at approximately 50 acres within the Live Impact Area of the former VNTR. The removal will be completed in designated grids within the LIA following approval of the Navy NTR. The actual number of acres to be surface cleared will be dependent upon the Cost Index Factor (CIF) and the available funding for the Delivery Order; however, for a cost basis it should be assumed that 50 acres will be surface cleared. The Contractor shall perform surface clearance under areas in which targets have been removed by the Range Scrap Management contractor. The surface cleared items will be stockpiled at locations designated by the on-site Navy representative or Title II



Construction manager within the cleared MRSs for collection by the scrap management contractor. Stockpiles of removed materials must be segregated into appropriate waste streams: 1-MPPEH, 2-MD, and 3-RRD. Actual 3X certification of the scrap will need to be provided by the scrap management contractor.

The contractor will removal all UXO and MPPEH and DMM equal to or greater than 20 mm in size and removes all MD, RD and MPPEH greater in size than 2" x 2". The QC Criteria will meet the requirements in the TCRA Work Plan (CH2M HILL, March 2005) and DoD Mil-Std-1916 (1 April 1996).

Costs and schedules presented in the contractor proposal should account for the various quantities of UXO, MPPEH, and DMM requiring further demolition/demilitarization and removal; and MD and RRD requiring removal. The costs and schedules should be presented on a per acre basis as discussed in the FEE PROPOSAL Section in this SOW and as shown in the attached example proposal format.

The Title II services or Navy CLEAN contractor will procure a licensed surveyor to establish control points as necessary to provide sufficient grid location data. However, the contractor shall establish markers at grid corners for the surface removal areas. Each MRS requiring removal action may consist of UXO Technician supported vegetation removal, removal of all MEC and scrap metal either at the surface or partially exposed, surveying of the locations of all identified MEC, description and cataloging of all identified MEC, demilitarization and demolition of all munitions items with an explosive hazard, carrying out blow-in-place (BIP) operations where necessary to allow for safe removal of items with an explosives hazard, verifying all MPPEH/MD as free of explosive hazard, transport of all MPPEH/MD and non-MPPEH/MD metal to a designated location within the LIA, and site restoration activities.

All MEC within the grids that have an explosive safety hazard will be treated within the grids, either by blow-in-place methods or with consolidated shots following verification that they are considered to be safe to move. All MEC and scrap metal that can be removed will be demilitarized and inspected to determine that the items no longer contain energetic materials. The scrap will then be stockpiled in strategic locations as designated by the on-site Navy representative or Title II Construction manager for collection and transportation by other contractors. Locations will be determined in the field between the contractor and Navy representatives.

Materials visually inspected and found to be free of explosives should be uniquely marked, segregated, and staged at a designated location. After inspection and staging of the MEC, MPPEH, MD, and other related range scrap, the NAVFAC RPM or On-Site Navy Representatives and/or designated representatives should be notified that the material is ready for collection and processing (e.g., shredding, shearing, flashing). The material will be further inspected by the on-site scrap processor prior to collection, transfer, and treatment. If the material is questionable or unacceptable based on the potential for explosives to be present the contractor will be required to further treat the material to meet the processing requirements.

All MEC removal activities will require two separate teams, a MEC Clearance Team and a Vegetation/MEC Scrap Clearance Team. It is recommended that the contractor will have a Senior UXO Supervisor (SUXO), UXO Safety Officer, and QC Manager. It is recommended at a minimum, the MEC Clearance Team shall consist of the following: a UXO Technician III and UXO Technician IIs/Is. The Vegetation/MEC Scrap Clearance Sweep Team will consist of a minimum of 10 UXO sweep personnel, two UXO Technician IIs, and one UXO Technician III. It is recommended all proposed removal action teams should be comprised of UXO technician level staff that achieves the most safe, efficient, and cost effective clearance. The qualifications for all of these individuals and team sizes will meet the requirements described in DDESB Technical Paper 18 (18 June 2004). Determination of the composition of the teams shall be included in the Contractor's Work Plan and upon review and approval by the NAVFAC Remedial Project Manager shall be finalized at that time.

#### 7.0 SITE SECURITY REQUIREMENTS:

7.1 United States Citizenship. No employee or representative of the Contractor will be admitted to the work site unless the employee or representative furnishes satisfactory proof of United States citizenship, or is specifically authorized admittance by the government.

7.2 Explosive Safety and Security Requirements: At a minimum, the safety and security of explosives and storage of UXO or MEC items will be in compliance with the Explosive Safety Submission for the former VNTR, the Explosives Operations Plan, the Time Critical Removal Action (TCRA) Work Plan, the TCRA Amendment, the Master Work Plan) and any other applicable regulations and laws. The purchase, delivery, storage, distribution, and management of explosives is an integrated and established process between NAVFAC and other MRP Contractors under this Time Critical Removal Action. Coordination of this effort will be required with the current on-site MRP contractor and shall be accomplished based on the current established practices on Vieques.

#### 8.0 CONTRACTOR AND SUBCONTRACTOR PERSONNEL LIST.

The contractor shall provide to the Contracting Officer or designated representative, a list of Contractor and/or subcontractor personnel (including addresses and telephone numbers) for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists. The Contractor shall post a list of the subcontractors at the project site.

#### 9.0 DELIVERABLES AND SUBMITTALS: Deliverables and Submittals.

9.1 Submittal Register. The contractor shall prepare and submit a Submittal Register delineating all of the submittals required per plans defined above and per requirements for MEC type work for review and approval within 15 days after the NTP has been issued. Instructions for completion of the Government furnished Submittal Register are provided in the main contract in Section 7.8. The submittal register with columns (a), (b), (c), and (d) completed by the Contractor is designated the initial submittal register required as a part of the Project QC Plan. Additional details concerning the use of the submittal register will be explained at the preconstruction conference.

In addition to the work plan deliverables specified earlier and submittals required per submittal register, the contractor will be required to review document deliverables related to the site inspection and removal actions at the Former VNTR as described in the following paragraphs:

Site inspection reports and other related reports will be provided by NAVFAC Atlantic RPM and/or the Title II Construction Manager for the areas identified for surface MEC removal in this SOW. Preliminary Draft, Draft, Draft Final, and Final Reports will be prepared. The reports should follow the USACE Data Item Description MR-030.

The contractor will review the reports to understand the site conditions within the LIA and ECA. A Time Critical Removal Action Plan (TCRA) and TCRA Amendment will be provided by NAVFAC Atlantic RPM or the Title II Construction Manager, and data compiled from the recent Expanded Range Assessment/Phase I Site Inspection, for the areas identified for surface MEC removal in this SOW. The TCRA will apply to the removal action of the LIA and ECA. The contractor will prepare work plans for the removal of the MEC, visually observed at the surface, from the areas identified in this SOW. Draft and final versions will be prepared for each work plan. Discreet areas for MEC surface removal will be identified by the NAVFAC Remedial Project Manager or designated representative/Title II contractor prior to the pre-construction meeting and during the development of work plans.

Post MEC surface removal after action reports will be prepared by the contractor. A draft and final report will be prepared for the removal actions

9.2 Invoices. Invoicing is to be completed on a monthly basis and shall be conducted on a unit cost basis for the work completed including the following:

Government Furnished Equipment (Cost/Item)

Project Management (Cost/Acre);

Meetings (Costs/Meeting)

Work Plan (% complete);

Mobilization/Construction (% complete);

Vegetation clearance of low, moderately, and highly densely vegetated areas, (cost/acre).

Surface Clearance unit costs based on the following combined number of MEC and Non MEC items: 1 - 5,000 items/acre; 5,001 - 10,000 items/acre; and greater than 10,000 items/acre.

Demilitarization of surface cleared MEC items to meet 3X equivalent requirements (cost/category) for the following categories of MEC items: 0-50 items, 51-100 items, 100-200 items.

Report (% complete)

Demobilization (% complete)

9.3 Database Management. An electronic database containing information (data) regarding MEC located and removed during site removal will be maintained by the Title II Services Contractor in a format compatible with NAVFAC Atlantic operating systems and software. The database will be updated by the MEC removal contractor in the field on a daily basis as data is collected using a field data collection tool equipped with software that is compatible with the GIS. The database will include but is not limited to: MEC geographical coordinates, item name, item depth, and final disposition information, associated geophysical instrument amplitude readings, unique identification number for items, and if there is an explosive hazard associated with the item. The database will be compatible with Oracle database systems.

9.4 Logs, Reports, and Record Keeping. During the field activities weekly progress reports will be prepared and weekly conference calls will be held with the Navy. The contractor shall maintain safety inspection reports, accident/incident reports, medical certifications, training logs, monitoring results, QC records, etc. The contractor shall maintain all exposure and medical monitoring records in accordance with OSHA Standard 29 CFR 1910 and 1926. Submit in accordance with DD Form 1423 and DD Form 1664 and appropriate forms contained in the Master MEC Work Plan for the Former VNTR.

#### 10.0 ADDITIONAL PERSONNEL QUALIFICATIONS:

10.1 Personnel Qualifications. The qualifications of site personnel shall be in accordance with DD Form 1423 and DD Form 1664 OE-025 for those categories that are included in the CLIN structure. The contractor shall provide to the Government the qualifications and minimum experience of all labor categories used to accomplish the work effort but not covered in OE-025.02. Federal employees, military or civilian, shall not be employed by the contractor in performance of any work under the contract; i.e., during off duty hours, regular hours, or while on annual leave.

10.2 Key Personnel and Core Labor Categories. Minimum key personnel and core labor categories are identified in DD Form 1664 OE-025.02, paragraph 10.4 and 10.5 and shall be provided as applicable and shall meet the qualifications and requirements as stated in DD Form 1664 OE-025.02. Prior to working under this contract all key personnel and UXO personnel, shall be approved by the Contracting Officer or designated representative.

#### 11.0 FEE PROPOSAL AND PRICE BREAKDOWN:

The scope of services is to be performed on firm fixed price basis in accordance with the unit cost schedule described below. The proposal shall be submitted in accordance with the attached format. The Contractor shall provide a price breakdown for all proposals, itemized, as directed by the Contracting Officer. Unless otherwise directed, the breakdown shall be in sufficient detail to permit an analysis of all materials, labor, equipment, subcontract, and overhead costs, as well as profit, and shall cover all work involved in the scope of work. Any amount claimed for subcontractors shall be supported by a similar breakdown.

Costs are to be grouped into the following categories: 1) Project Management Costs: including project management oversight and meeting costs; 2) Field Costs including costs for labor, , field equipment (weed eaters, front end loader, metal detectors, and field tools/safety equipment; and 3) Support Costs including: travel, lodging, meals, transportation, vehicle rental.

Mobilization costs are to be provided separately for the entire project including: the transportation costs, per diem costs, transport of equipment to the site (Cost/event)

Vegetation clearance costs are to be provided separately for manual vegetation clearance of low, moderately, and highly densely vegetated areas, (cost/acre). Low density vegetated areas are those consisting of grass covered areas that will require weed eaters to remove the grass. Moderately vegetated areas are areas covered with

grass and sparsely covered scrubs. Densely vegetated areas are those covered in dense shrubbery and trees. It should be assumed that controlled burn cleared areas will not require vegetation clearance. Costs per acre should be based on the level of effort of labor and supporting equipment to perform this function.

Surface Clearance unit costs are to be provided based on the following total combined number of MEC and Non MEC items: 1 - 5,000 items/acre; 5,001 - 10,000 items/acre; and greater than 10,000 items/acre. Costs per acre should be based on labor and supporting equipment to perform this function.

Demilitarization of MEC items to meet 3X equivalent requirements. Separate unit costs are to be provided for demolition of MEC items, based on individual demolition events and the costs for explosives for the following categories of MEC items: 0-50 items, 51-100 items, 100-200 items.

Purchase of Government Furnished Property- The following items will be purchased as government furnished property: Schonstedt magnetometers, weed eaters, chain saws. Costs are to be provided for each individual item. Additional items identified by the contractor as necessary to carry out the removal action activities should be identified in the task order proposal.

On-Site storage for small equipment is available in Camp Garcia and/or the LIA. The management of field operations shall be conducted from the office space made available to the Contractor at the Camp Garcia Base Camp.

A detailed cost breakdown for each of the unit costs needs to be provided and include the following: cost/acre for each of the unit tasks identified. Any additional expenses not previously provided in the original bid shall be incorporated into the unit costs items identified. The proposal shall provide an estimate of the duration of the surface clearance for the minimum and maximum unit cost items identified.

## 12.0 CONTRACT TASK ORDER DURATION

The duration of field activities shall be completed within 6 months from the Notice to Proceed. The final after action and other required final reports shall be completed within 60 days of completion of field activities.

### REFERENCES.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, Public Law (PL)96-510, 94 Stat 2767, 42 USC 9601.

NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Oct. 85.

HQUSACE Letter, DACS-SF, Explosives Safety Policy for Real Property Containing Conventional Ordnance Explosives.

HQDA Policy Memorandum, Interim Guidance for Biological Warfare Material (BWM) and Non-stockpile Chemical Warfare Material (CWM) Response Activities, 5 Sep 97.

AR 75-15, Responsibilities and Procedures for Explosive Ordnance Disposal (EOD).

AR 190-11, Physical Security of Arms, Ammunition, and Explosives.

DA PAM 385-64, Ammunition and Explosives Safety Standards.

29 CFR 1910.120-1926, Occupational Safety and Health Standards.

DOD 6055.9-STD, DOD Ammunition and Explosives Safety Standards.

DOD 4160.21-M, Defense Utilization and Disposal Manual.

DOD 4160.21-M-1, Defense Demilitarization Manual.

EM-385-1-1, Safety and Health Requirements Manual.

ER 385-1-92, Engineering Regulations Safety and Occupational Health Document Requirement for HTRW and OE Activities.

ER 715-1-19, Service and Supply Contractor Performance Evaluations.

TM 60A-1-1-22, EOD Procedures: General EOD Safety Precautions.

TM 60A-1-1-31, EOD Procedures: General Information on EOD Disposal Procedures.

USAESCH Safety Concepts and Basic Considerations for UXO.

USAESCH UXO Personnel Data base.

29 Code of Federal Regulations (CFR).

ATFP 5400.7, Alcohol, Tobacco, and Firearms Explosive Laws and Regulations.

27 CFR Part 55, Commerce in Explosives.

40 CFR Parts 100-199, Transportation.

ETL 385-1-2, Generic Scope of Work for Ordnance Avoidance Activities.

TM 9-1300-200, Ammunition General.

TM 9-1300-214, Military Explosives.

ER 1110-1-8153, Ordnance and Explosive Response.

EP 1110-1-17, Establishing a Temporary Open Burn and Open Detonation Site for conventional Ordnance and Explosives Project, 16 Jul 99.

EP 1110-1-18, Ordnance and Explosives Response.

TB 700-2, Department of Defense Ammunitions & Explosives Hazardous Classification Procedures.

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

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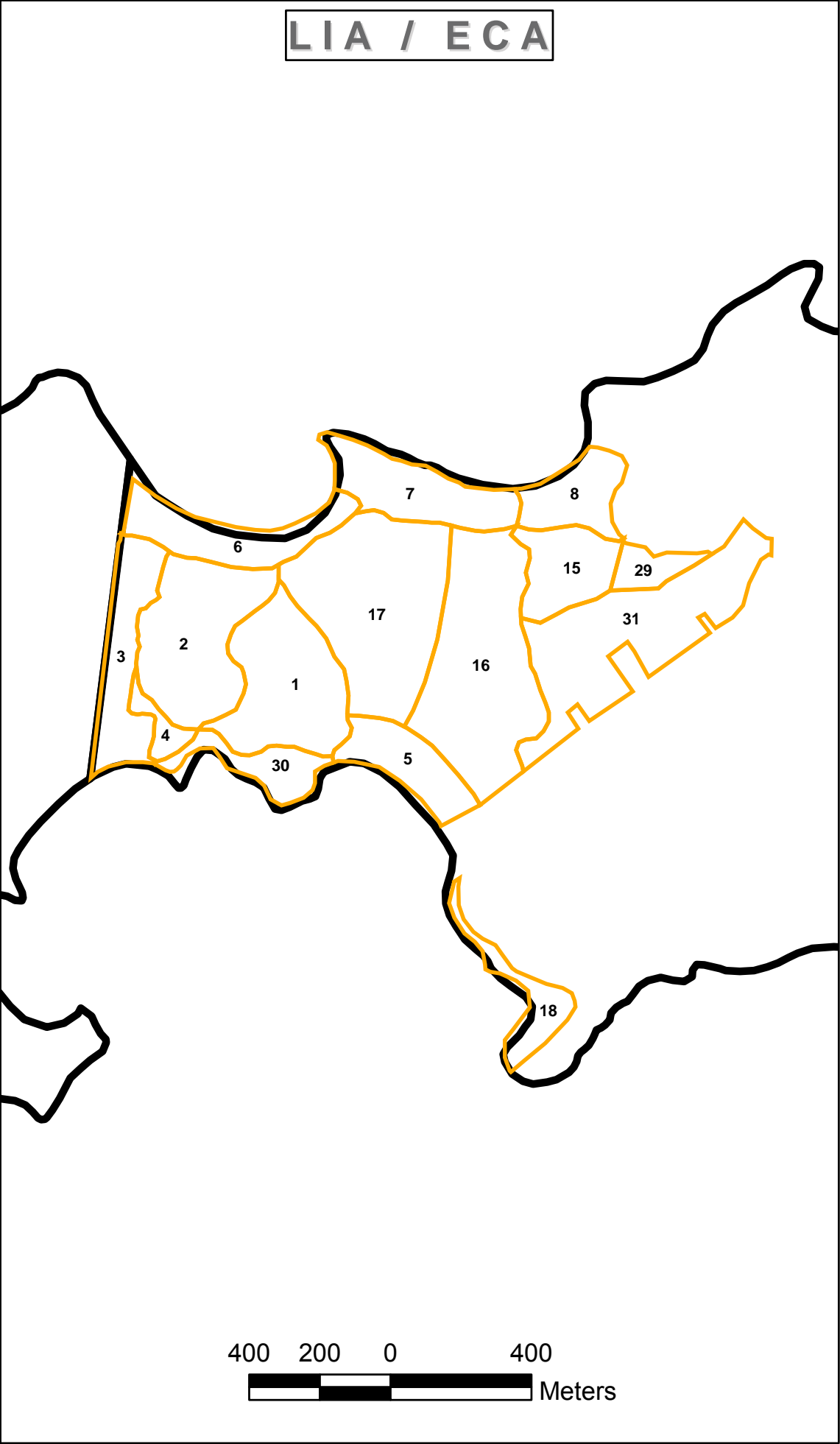
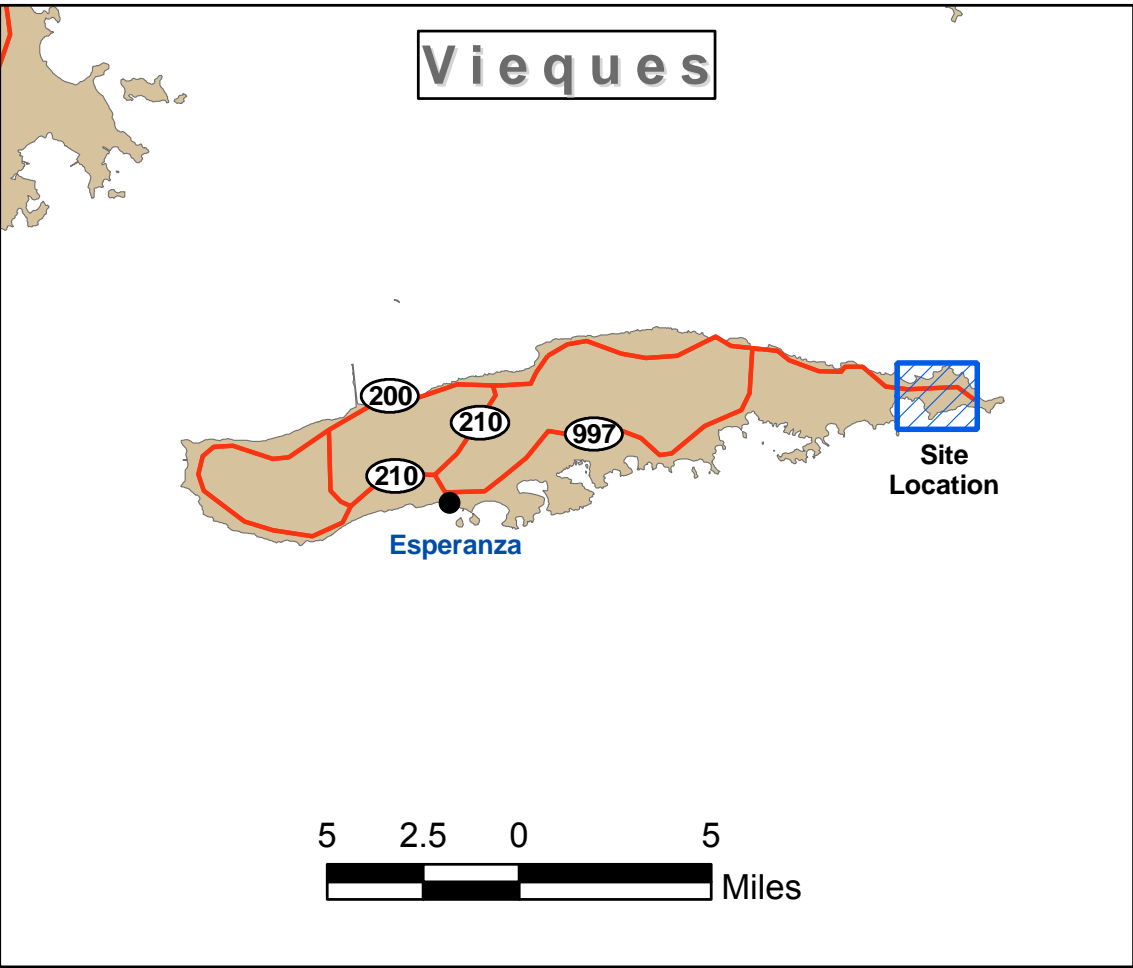
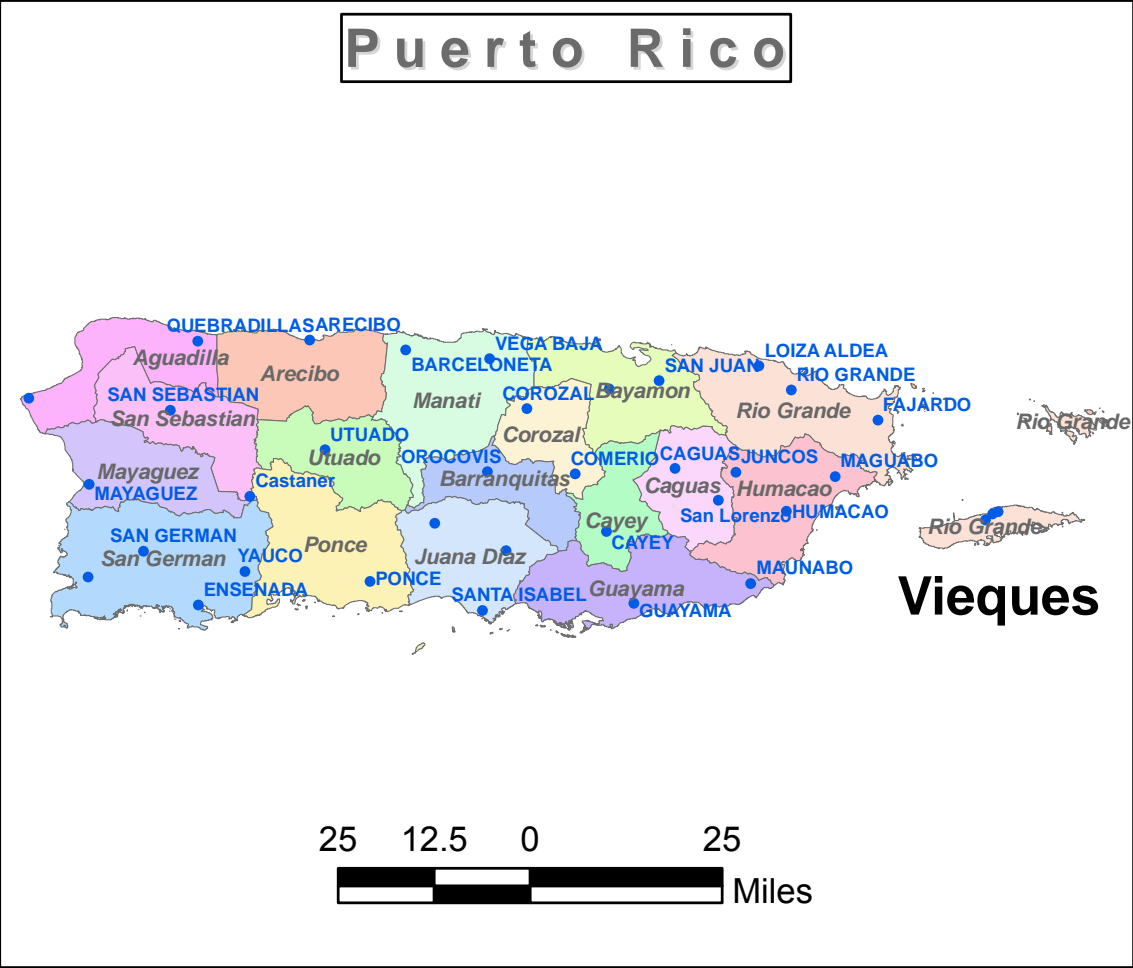
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## **APPENDIX B**

### **B.0 SITE MAPS**

This appendix contains the following maps for the Munitions Removal Actions at the Live Impact Area in the Former Vieques Naval Training Range, located on Vieques Island, Puerto Rico.

- Figure B-1: Location Map
- Figure B-2: Site Map



**Munitions Removal Action  
Live Impact Area and  
Eastern Conservation Area**

**Figure B-1**

**Regional Location  
of Vieques Island**

NASD, Vieques Island, Puerto Rico

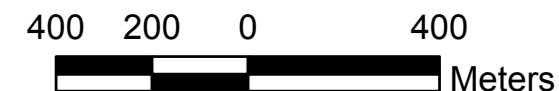
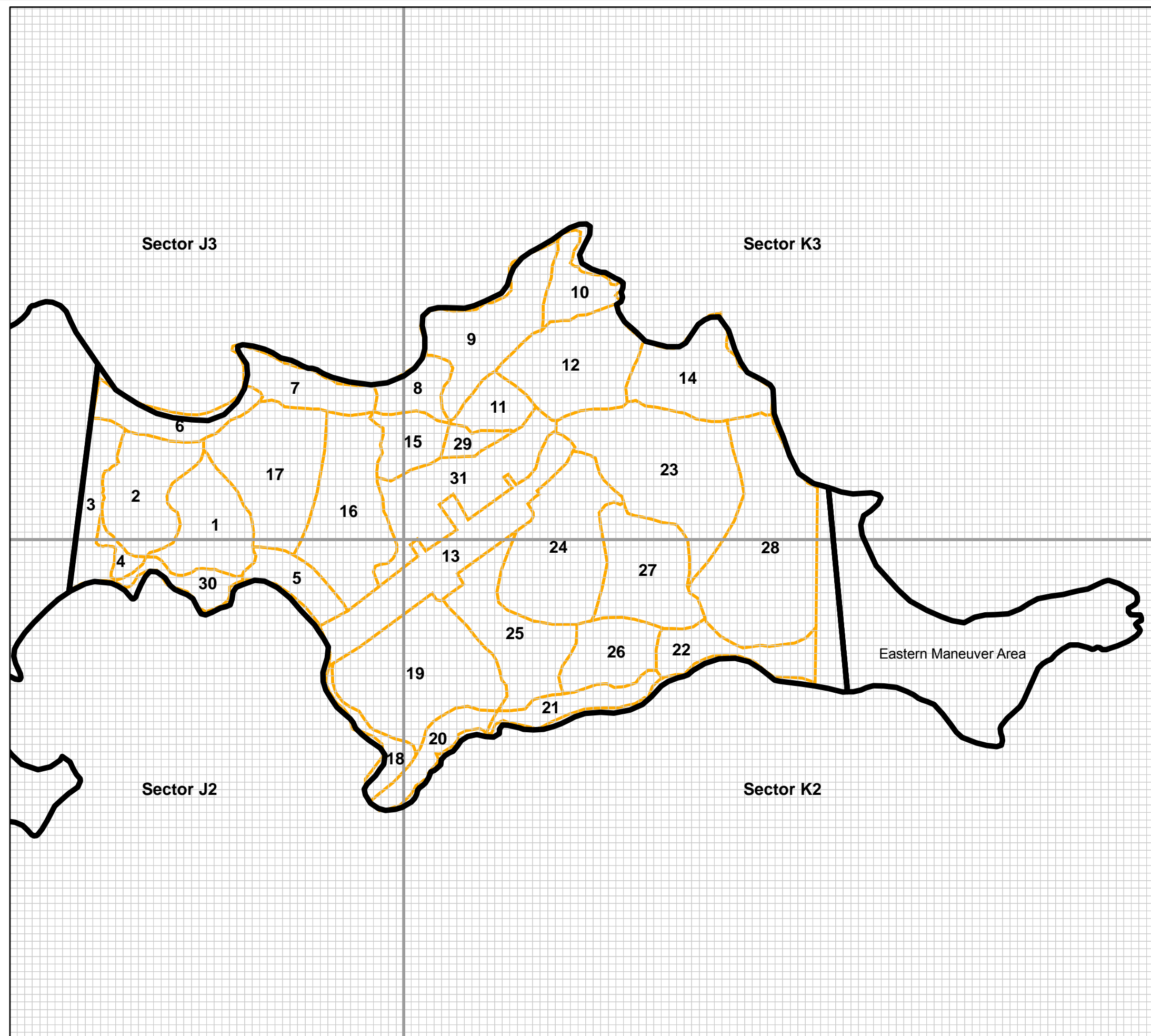
**Legend**

- Vieques Island Boundary
- Munitions Response Sites

<i>USA Environmental, Inc.</i>		<b>Project Resources, Inc.</b>	
Drawn By: WAC/ JAL	Scale: Varies	Rev:	
Checked By:	Date Drawn: 8-16-2006		
Submitted By: RH	Revision Date:		

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Data is projected to the UTM Coordinate System:  
Zone 20, NAD83, Units in Meters.

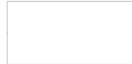



**Munitions Removal Action  
Live Impact Area and  
Eastern Conservation Area**

## Figure B-2

### Site Map

Former VNTR, Vieques Island, Puerto Rico

### Legend

-  Grids
-  Sectors
-  Munitions Response Sites
-  Vieques Island Boundary

*USA*  
*Environmental, Inc.*

**Project  
Resources, Inc.**

Drawn By: WAC/ JAL    Scale: 1" = 400 m    Rev: 1

Checked By:    Date Drawn: 8-16-2006

Submitted By: RH    Revision Date: 9-18-2006



Path:  
S:\Vieques\LIA\Site map.mxd



## APPENDIX C

### C.0 POINTS OF CONTACT

This appendix contains the points of contact (POC) for the Munitions Removal Actions at the Live Impact Area in the Former Vieques Naval Training Range, located on Vieques Island, Puerto Rico.

POC	POSITION	ORGANIZATION	TELEPHONE NUMBER
<b>Naval Facilities Engineering Command, Atlantic Division</b>			
Mr. Chris Penny	Project Manager	NAVFAC	(757) 322-4815
<b>CH2M HILL</b>			
Mr. Stacin Martin	Project Manager	CH2M HILL	(757) 518-9666 X 435
Mr. John Tomik	Activity Manager	CH2M HILL	(757) 671-8311 X413
Ms. Heather Blackwell	Site Administration	CH2M HILL	(787) 556-7770
<b>Project Resources, Inc. (PRI)</b>			
Mr. Pete Porter	Program Manager	PRI	(585) 507-9919
Mr. Rickie Bratton	Operations Manager	PRI	(787) 741-4792
Mr. Michael Vasquez	Administrative Specialist	PRI	(787) 741-4792
<b>USA Environmental, Inc. (USA)</b>			
Mr. Rick Hanoski	Project Manager	USA	(813) 343-6382
Mr. Robert Crownover	Safety/QC Manager	USA	(813) 343-6364
Mr. Jeffery Lewis	GIS Manager	USA	(813) 343-6376
<b>Vieques National Wildlife Refuge</b>			
Mr. Oscar Diaz Marrero	Refuge Manager	USFWS Southeast Region 4	(787) 741-2138
Mr. William Wolfrom	Law Enforcement		(787) 457-0082
Mr. Felix Acosta	Law Enforcement		(787) 378-7868
<b>Vieques Law Enforcement</b>			
Fire Department			(787) 741-2111
State Police			(787) 741-2020/2121
FURA			(787) 863-5000
PR DNER			(787) 741-8683
<b>Federal Agencies Law Enforcement</b>			
Bureau of ATF			(787) 766-5584
Coast Guard			(787) 729-6800
DEA			(787) 775-1706
EPA			(787) 671-9879
Naval Security			(787) 865-4011
U.S. Customs Service			(787) 863-4766
U.S. FWS OLE	Wildlife Inspector		(787) 749-4338
U.S. Marshals Service		San Juan	(787) 766-6000
<b>Medical Emergency</b>			
Aeromed			(787) 756-3424
Ground Ambulance			(787) 741-1616
<b>Utilities</b>			
Electric Company			(787) 741-3851
Gas			(787) 741-1948
Telephone			(787) 741-1012/1013
Water			(787) 741-2001
<b>Other Contacts</b>			
	On-site Scrap Contractor	PIKA	(787) 741-4792
Federal Aviation Admin.	24-Hour Safety Hotline		(800) 255-1111
Mr. Noah Sarvis	Project Manager	Advent Environmental	

## **APPENDIX D**

### **D.0 ACCIDENT PREVENTION PLAN**

This appendix contains the Accident Prevention Plan for the Munitions Removal Actions at the Live Impact Area in the Former Vieques Naval Training Range, located on Vieques Island, Puerto Rico.

**ACCIDENT PREVENTION PLAN**

**MUNITIONS REMOVAL ACTION  
LIVE IMPACT AREA – FORMER VIEQUES NAVAL TRAINING RANGE  
VIEQUES, PUERTO RICO**

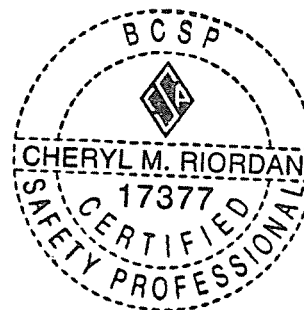
Plan approval:

\_\_\_\_\_  
Jonathan Chionchio  
President  
USA Environmental, Inc.  
(813) 343-6350

Date: \_\_\_\_\_

Plan concurrence:

*Cheryl M. Riordan* Date: *8/10/06*  
Cheryl M. Riordan, CSP  
Program Occupational Safety Manager  
USA Environmental, Inc.  
(757) 486-8567



Plan prepared by:

*Robert Crownover* Date: *8/11/06*  
Robert Crownover  
Program Safety and Health Manager  
USA Environmental, Inc.  
(813) 343-6364



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## **ATTACHMENTS**

Attachment 1	OSHA 300 Forms
Attachment 2	Activity Hazard Analyses
Attachment 3	Hospital Directions
Attachment 4	Site Health and Safety Plan
Attachment 5	Plan for Prevention of Alcohol and Drug Abuse
Attachment 6	Material Safety Data Sheets
Attachment 7	Safety Forms

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## ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
bpm	beats per minute
CDC	Center for Disease Control
CFR	Code of Federal Regulations
CHSM	Corporate Health and Safety Manager
CSP	Certified Safety Professional
°F	Degrees Fahrenheit
EM	Engineer Manual
EMS	Emergency Medical Service
ERCP	Emergency Response Plan and Contingency Procedures
EZ	Exclusion Zone
HAZWOPER	Hazardous Waste Operations and Emergency Response
HIV	Human Immunodeficiency Virus
LIA	Live Impact Area
MEC	Munitions and Explosives of Concern
MRS	Munitions Response Site
MSDS	Material Safety Data Sheet
NAVFAC	Naval Facilities Engineering Command
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PPE	Personal Protective Equipment
PR	Pulse Rate
PRI	Project Resources, Inc.
RMSF	Rocky Mountain Spotted Fever
SHSP	Site Health and Safety Plan
SOW	Statement of Work
SUXOS	Senior Unexploded Ordnance Supervisor
TLV	Threshold Limit Value
USA	USA Environmental, Incorporated
UXO	Unexploded Ordnance

UXOQCS	Unexploded Ordnance Quality Control Specialist
UXOSO	Unexploded Ordnance Safety Officer
VNTR	Vieques Naval Training Range
WBGT	Wet, Bulb Dry Globe Temperature
WNV	West Nile Virus

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## **D.1 BACKGROUND INFORMATION**

This Accident Prevention Plan (APP) has been prepared by Project Resources, Inc. (PRI) and USA Environmental, Inc. (USA), A Vieques Joint Venture (PRI-USA JV) for the Munitions Removal Action at the Live Impact Area (LIA) of the former Vieques Naval Training Range (VNTR), located on Vieques Island, Puerto Rico.

### **D.1.1 PURPOSE**

The purpose of this APP is to establish site-specific safety and health procedures, practices, and equipment to be implemented and used to protect affected personnel from the potential hazards associated with the field activities to be performed at the project site. The APP assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise while operations are being conducted during the Munitions Removal Action process. The APP will interface with the USA Corporate Safety and Health Program.

### **D.1.2 CONTRACTOR**

PRI-USA, A Vieques JV  
3760 Convoy Street, Suite 230  
San Diego, CA 92111

### **D.1.3 CONTRACT NUMBER**

N62470-05-D-6208

### **D.1.4 CONTRACT TASK ORDER NUMBER**

CTO: 0002

### **D.1.5 PROJECT NAME**

Munitions Removal Action  
Live Impact Area  
Formal Vieques Naval Training Range - Vieques Island, Puerto Rico

### **D.1.6 PROJECT DESCRIPTION**

See Section 1.1 "Site Description" of the Site Health and Safety Plan (SHSP) and Table D-1.

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**Table D-1: Site Description**

Site Location	Approximate Size (Acres)
LIA - Former VNTR, Vieques Island, Puerto Rico	50 acres total
Topography	Present Usage
X Forested Tillage River/Creeks X Grassland X Flat land Open Terrain X Wetland Arid X Other: Dense canopy	X Rural Commercial Urban X Government Industrial Farming Ranching Residential Recreational Military Other

## D.2 DESCRIPTION OF WORK

PRI-USA JV will perform a magnetometer-assisted surface clearance for all munitions and explosives of concern (MEC) that is on the surface and for MEC that is partially visible from the surface at the LIA Munitions Response Site (MRS) areas of VNTR. The project site encompasses approximately 50 acres within several MRSs at the LIA. An unexploded ordnance (UXO)-qualified team will assist in removal of vegetation on-site to aid in MEC surface clearance operations. A scrap clearance team will remove munitions debris and range residue in excess of 2 inches x 2 inches. It will be inspected and certified as explosive free, secured and consolidated in areas selected by the Naval Facilities Engineering Command (NAVFAC) Atlantic on-site representative and will later be turned over to a qualified recycler. MEC will be safety located, identified, recovered, evaluated, demilitarized, managed and stored. Live MEC disposal will be either by blow-in-place methods (when MEC is not acceptable to move) or in a consolidated shot (when MEC is acceptable to move).

## D.3 CONTRACTOR ACCIDENT EXPERIENCE

USA's Experience Modification Rate for the last five years is shown in Table D-2. A copy of the latest Occupational Safety and Health Administration (OSHA) Form 300 and OSHA Form 300A is provided in Attachment 1.

**Table D-2: Experience Modification Rate**

Year	Interstate	Intrastate
2005	0.69	N/A
2004	0.70	N/A
2003	0.73	N/A
2002	0.72	N/A
2001	0.76	N/A
2000	0.74	N/A

#### D.4 PHASES OF WORK REQUIRING ACTIVITY HAZARD ANALYSIS

The following phases of work on this project require an Activity Hazard Analysis (AHA):

- Surveying-in the Site Boundaries and Grid System
- Vegetation Clearance
- Surface Clearance
- Munitions Debris Collection
- MEC Scrap Inspection and Certification
- MEC Disposal Operations
- Disposal of MEC Scrap
- Quality Control

The AHAs forms are located in Attachment 2 of this APP and examples of site hazards are provided in Table D-3.

**Table D-2: Hazards Table**

HAZARDS*	ACTION LEVELS**
Safety: include falling (rocks, inclines, slippery surfaces); climbing (uneven terrain); walking (uneven terrain, surface indentations); hand and power tool operations (hammers, machetes chainsaws, weed eaters) eye hazards (windy conditions); and MEC.	None/Awareness/Avoidance
Chemical: Lubricants and fuels for equipment.	Per Material Safety Data Sheets
Physical: include heat injuries, and noise.	Per Monitoring Requirements
Radiological: None anticipated.	Not applicable.
Biological Hazards: may be present; include biting and stinging insects, hazardous plants and wildlife.	None/Awareness/Avoidance
MEC: may be present on site, use approved measures.	Observe Safety Procedures

##### Notes to Hazards Table

###### \*HAZARDS

###### **Safety:**

Falling: (e.g. Open pits; wells; shafts; rocks crevices; steep inclines; slippery surfaces; etc.)  
Climbing: (e.g. Falls from structures > 4 feet high; deteriorated ladders or missing rungs; etc.)  
Walking or Debris: (e.g. Uneven terrain; animal burrows; surface indentations; exposed nails; broken timbers; sharp protruding objects; broken glass; metal fragments; etc.)  
Confined Space (e.g. Excavations > 4 feet deep; surface/underground utility vaults; open surface tanks/cisterns/septic tank; underground/above ground storage tanks; etc.)(DO NOT ENTER)  
Water: (e.g. Moving waterways (Flash Floods); drowning/near drowning conditions or environments; etc.)  
Eye Hazards: (e.g. Airborne dust/windy conditions; liquid splashes; etc.)  
MEC/Other: (e.g. Explosives; combustible or flammable materials; etc.)

**Chemical:** Evaluate the chemical hazards that may be encountered during site activities for each task. For

activities utilizing this plan, encounters with chemicals above the PEL, or TLV are not expected. THIS PLAN SHALL NOT BE USED IF OVEREXPOSURES OR IDLH CONDITIONS ARE EXPECTED. (List the chemical TLV/PEL/REL; OSHA/NIOSH IDLH; odor threshold/warning levels; warning signs/symptoms of overexposure; concentrations expected on site.)

**Physical:** Evaluate the potential for injury from physical agents such as noise, electricity, moving parts/machinery, heat and cold stress that may be present (e.g. loud machinery; overhead or underground power lines; personal protective clothing, etc.)

**Radiological:** Evaluate the risk to human health caused by radioactive materials in the area where work is to be performed.

**Biological:** Evaluate the potential for illness of injury due to biological agents (e.g. poisonous plants, animals, insects, microorganisms, etc.)

**MEC:** Evaluate exposure; minimize people, time, and amount of hazardous material. Age or condition of UXO DOES NOT decrease hazard. UXO exposed to fire is EXTREMELY hazardous: EVACUATE IMMEDIATELY.

**\*\*ACTION LEVELS**

Action Levels shall typically be defined as requiring site evacuation only, if significant hazards are encountered. Note: The activities for which this SHSP is designed, will not typically encounter chemical contaminant or radioactive exposures above background. In the event that chemical or radioactive exposures, which are judged to be significant, are encountered (reasonable potential to exceed permissible exposure limits or encounter IDLH conditions) this plan requires work stoppage of the site, reevaluation, and development of procedures designed by Safety Management that will address the potential exposure. Chemical exposures (releases) requiring evacuation shall always be in an upwind direction to a safe distance. PPE per hazard assessment will be worn.

## **D.5 STATEMENT OF SAFETY AND HEALTH POLICY**

This APP has been developed in recognition of the responsibilities of PRI-USA JV and the need for management to establish a policy with regard to the prevention of on-the-job injuries. Through application of these safety policies and procedures, it is the PRI-USA JV's primary goal to reduce to a minimum the human suffering by employees resulting from occupational injuries. Not only can injuries have a serious physical and emotional impact on the employees themselves, but can also have a negative effect on family members and co-workers.

In addition, we must recognize the deterrent and eroding effect injuries have on the potential profit. Insurance costs combined with the indirect costs of injuries are a matter of serious concern and it is PRI-USA JV's intention that they be reduced. This desired reduction could take place, over a long term, if the frequency of injuries is kept to a minimum. As it affects PRI-USA JV, the elimination of on-the-job injuries is an important responsibility of management. This responsibility must be assumed and treated in the same manner as our business philosophies relating to services rendered.

For PRI's and USA's Corporate Safety and Health Programs to become effective, it will be necessary for each employee to take a serious interest in the prevention of injuries. Management fully intends to provide, in administration of the program, the leadership and direction to which supervisory personnel and employees will respond. It is PRI's and USA's earnest request that all concerned devote their serious attention toward making this Safety and Health Program an integral part of the day to day business operations. Always remember that no job is so important and no service is so urgent that we cannot take the time to perform our work safely.

All site operations will be performed in accordance with applicable federal, state, and local regulations and procedures, OSHA requirements, client requirements, and PRI's and USA's Corporate Safety and Health Program and this APP. All PRI-USA JV employees will comply with the requirements of this plan.



## **D.6 RESPONSIBILITIES AND LINES OF AUTHORITY**

All personnel are responsible for continuous adherence to this APP and safety and health procedures during the performance of their work.

### **D.6.1 PERSONNEL RESPONSIBILITIES**

No person may work in a manner that conflict with the intent of, or the inherent safety and environmental precautions expressed in these procedures. After due warnings, PRI-USA JV will dismiss from the site any person who violates safety procedures. PRI-USA JV employees are subject to progressive discipline and may be terminated for continued violations. All on-site personnel will be trained in accordance with this document.

#### **D.6.1.1 PROJECT MANAGER- RICHARD HANOSKI**

Responsibilities include:

- Ensures conformance with PRI-USA JV corporate, NAVFAC Atlantic, and other established policies and procedures;
- Coordinates project with NAVFAC Atlantic project representatives;
- Ensures the project has the necessary resources to operate safely;
- Ensures that the project personnel satisfy PRI-USA JV, NAVFAC Atlantic, and other applicable health and safety requirements;
- Ensures that the project personnel implement the project APP; and
- Ensures that the project personnel have the appropriate regard for safe job performance.

#### **D.6.1.2 CORPORATE HEALTH AND SAFETY MANAGER- ROBERT CROWNOVER**

Responsibilities for the Corporate Health and Safety Manager (CHSM) include:

- Oversight in developing and coordinating the APP as required;
- Make changes to the APP if warranted by changed conditions;
- General Health and Safety Program administration and enforcement;
- Determine the level of personnel protection required;
- Investigate significant accidents and illnesses and implement corrective action plans;
- Establish air-monitoring parameters based on expected contaminants;
- Establish employee exposure monitoring notification programs;
- Develop site-specific employee/community emergency response plans based on expected hazards;
- Stop any operation that threatens the health or safety of the team or surrounding population; and
- Upgrade or downgrade levels of protection based on site observations or monitoring results.

D.6.1.3 CERTIFIED SAFETY PROFESSIONAL – CHERYL RIORDAN, CSP

Responsibilities for the Certified Safety Professional (CSP) include:

- Develop and coordinates the APP as required;
- Recommend changes to the APP if warranted by changed conditions;
- General Safety and Health Program administration;
- Determine the level of personnel protection required;
- Confirm each PRI-USA JV team member's suitability for work based on physician's recommendation;
- Conduct field safety and health audits to ensure SHSP conformance and PRI-USA JV policy compliance;
- Investigate significant accidents and illnesses and implement corrective action plans;
- Certify that all workers have proper training as per OSHA 29 Code of Federal Regulation (CFR) 1910.120(e);
- Update equipment or procedures based on information obtained during site operations;
- Investigate significant accidents and illnesses and implement corrective action plans;
- Establish air-monitoring parameters based on expected contaminants;
- Establish employee exposure monitoring notification programs;
- Develop site-specific employee/community emergency response plans based on expected hazards;
- Stop any operation that threatens the health or safety of the team or surrounding population; and
- Upgrade or downgrade levels of protection based on site observations or monitoring results.

D.6.1.4 OPERATIONS MANAGER- (TBD)

All site activities will be conducted under the management of the Operations Manager. The Operations Manager will oversee all work and will perform any off-site emergency notification. He is also responsible for:

- Ensuring conformance with contract requirements and project policies and procedures;
- Coordinating site activities with Navy personnel;
- Ensuring the site has the necessary resources to operate safely;
- Ensuring site personnel satisfy the USA and NAVFAC Atlantic health and safety requirements;
- Ensuring site wide implementation of the APP/SSHP; and
- Ensuring that site personnel have the appropriate regard for safe job performance.

D.6.1.5 SENIOR UXO SUPERVISOR- (TBD)

Daily site activities will be conducted under the supervision of the Senior UXO Supervisor (SUXOS). The SUXOS will oversee normal and emergency work and will assist in any emergency notification. He is also

responsible for:

- Supervising all site activities;
- Implementing the field APP;
- Coordinating with the UXO Safety Officer (UXOSO) on safety-related matters;
- Determining evacuation routes;
- Presenting daily safety meetings;
- Maintaining logs and records in the field; and
- Implementing changes to APP as directed by the CHSM, CSP, or UXOSO.

#### D.6.1.6 UXO SAFETY OFFICER- (TBD)

Site activities will be conducted under the supervision of the UXOSO for safety on an as needed basis. The UXOSO will act as safety oversight for normal and emergency work and will perform any emergency notification as the On-Scene-Incident-Commander. He is also responsible for:

- Implementing the field APP;
- Enforcing all provisions of the APP;
- Determining evacuation routes;
- Presenting daily safety meetings;
- Presenting training requirements for site personnel and visitors;
- Maintaining safety logs and records in the field;
- Implementing changes to APP as directed by the CHSM or CSP;
- General Health and Safety Program administration and enforcement;
- Enforcing the level of personnel protection required;
- Investigating work related accidents and illnesses and implementing corrective action plans;
- Establishing air-monitoring parameters based on expected contaminants;
- Establishing employee exposure monitoring notification programs;
- Stopping any operation that threatens the health or safety of the team or surrounding population; and
- Upgrading levels of protection based on site observations or monitoring results.

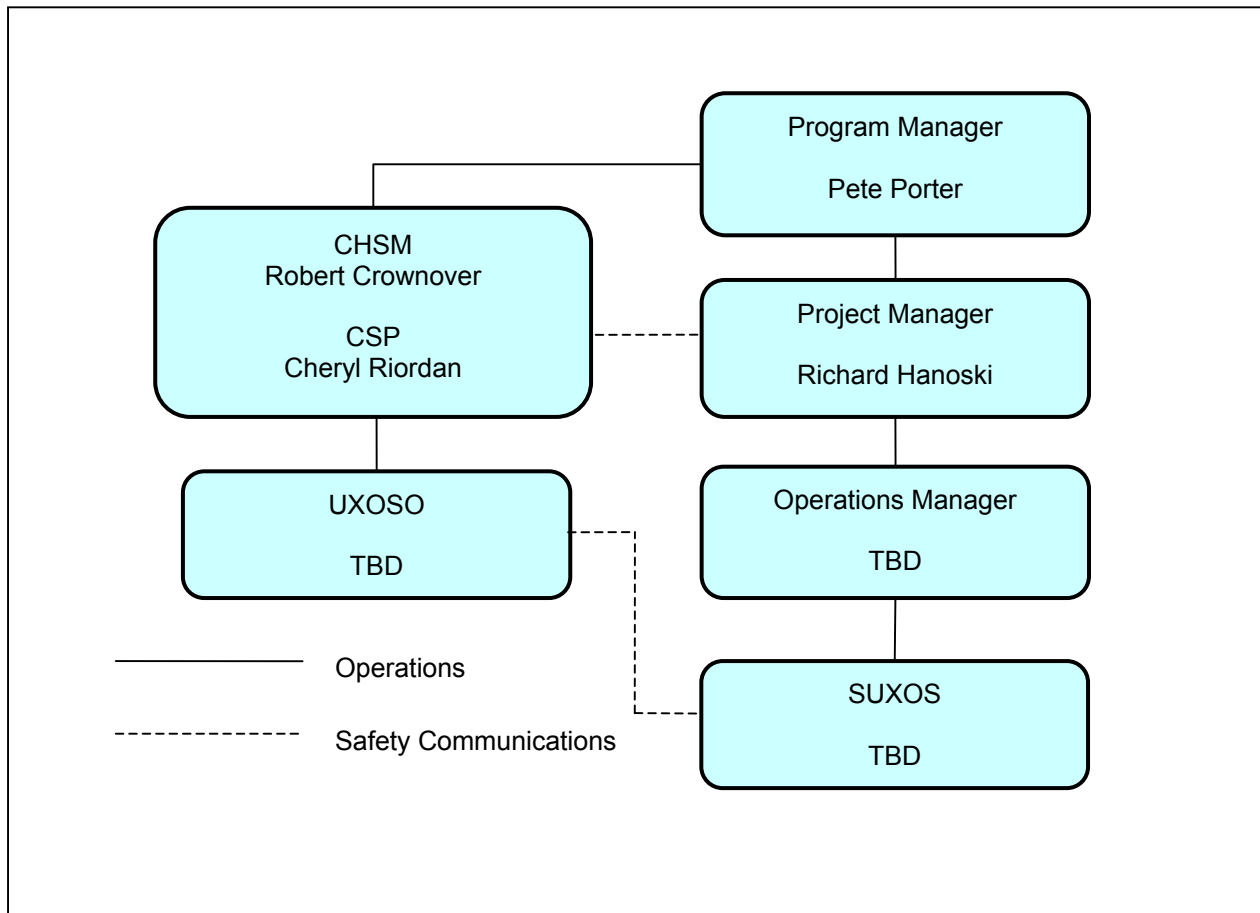
#### D.6.2 LINES OF AUTHORITY

Table D-4 lists contact information for project personnel and Figure D-1 contain the project personnel, their involvement on the project, the organization these individuals represent, and several ways to contact these individuals.

**Table D-4: Project Contacts**

<b>Name</b>	<b>Organization</b>	<b>Telephone</b>	<b>Cell number</b>	<b>E-mail</b>
Jeffrey Harlow	NAVFAC Remedial Project Manager	757-322-4787	N/A	Jeffrey.harlow@navy.mil
Richard Hanoski	Project Manager	813-343-6382	813-997-2105	rhanoski@usatampa.com
Robert Crownover	Corporate Health and Safety Manager	813-343-6364	N/A	rcrownover@usatampa.com
Cheryl Riordan	Certified Safety Professional	757-486-8567	813-426-2112	criordan@usatampa.com
TBD	Operations Manager			
TBD	Senior UXO Supervisor	813-343-6336		
TBD	UXO Safety Officer	813-343-6336		

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**Figure D-1: Lines of Authority for PRI-USA JV Corporate and Site Activities**

## **D.7 SUBCONTRACTORS AND SUPPLIERS**

PRI-USA JV will not have any subcontractors for this task order at the LIA site.

### **D.7.1 MEASURES OF CONTROLLING AND COORDINATING SUBCONTRACTORS**

Not applicable.

### **D.7.2 SAFETY RESPONSIBILITIES OF SUBCONTRACTORS**

Not applicable.

## **D.8 TRAINING**

Prior to commencement of site activities, the CSP and the UXOSO will ensure that all PRI-USA JV employees engaged in hazardous waste operations are informed of the nature and degree of exposure to chemical and physical hazards that are likely to result from participation in site operations. PRI-USA JV will accomplish this by ensuring that all personnel entering the site have received the appropriate OSHA and site-specific training, prior to participation in site activities. OSHA-required training will be conducted

prior to site mobilization. Site-specific training will be held at the time of site mobilization and will be reinforced during the daily safety briefings, to which all site workers will be required to attend.

#### D.8.1 SUBJECTS TO BE DISCUSSED WITH EMPLOYEES DURING SAFETY INDOCTRINATION

The training will cover the topics specified for site-specific training, and on-site participation in the following:

- Statement of Work;
- Details of the SHSP;
- Employee rights and responsibilities;
- Sequence of work events;
- Identification of safety issues for the site;
- Identify safety staff and lines of authority;
- Safe work practices;
- Proper lifting techniques;
- Recognition of potential MEC and hazards associated with MEC;
- Nature and extent of anticipated chemical, physical, and biological hazards;
- Measures and procedures for controlling site hazards;
- Emergency Response and Contingency Plan;
- Location of medical services;
- Site communication;
- Evacuation routes;
- Rules and regulations for vehicle use;
- Safe use of field equipment;
- Handling, storage, and transportation of hazardous materials;
- Use, care, and limitations of personal protective equipment (PPE);
- Hazard communication per OSHA 29 CFR 1910.1200.

#### D.8.2 GENERAL TRAINING

All PRI-USA JV employees who are involved in hazardous waste site activities receive 40 hours of OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. If it has been more than a year since any worker has received the 40 Hour OSHA HAZWOPER training, he or she must also have a current HAZWOPER 8-Hour Refresher Training in accordance with 29 CFR 1910.120 and 29 CFR 1926.65 prior to working on the site. All workers have also received three days (24 hours) of site-specific on-the-job training under the direct supervision of a trained/experienced supervisor. Any visitor entering the exclusion zone (EZ) during hazardous waste operations will also be required to have current HAZWOPER training. The EZ, during hazardous waste activities would include the project footprint and an area around the footprint equivalent to the fragmentation distance of approximately 5,640 feet, or otherwise adjusted for the actual items being disposed of, depending on the concurrence of the NAVFAC Atlantic on-site representative and the Title II

Contractor (CH2M HILL).

All current certifications and training tables for PRI-USA JV personnel will be maintained on site for the duration of the project. Individuals without proper training records will not be permitted to work on site.

#### D.8.3 SUPERVISORY TRAINING

On-site managers and supervisors, who are responsible for directing others, will receive the same training as the general site workers for whom they are responsible. They will also receive an additional 8 hours of OSHA-required supervisory training in accordance with 29 CFR 1910.120 and 29 CFR 1926.65 to enhance their ability to provide guidance and make informed decisions. This additional training includes the following:

- Review of the USA Corporate Safety and Health Program;
- Regulatory requirements;
- Management of hazardous waste site cleanup operations;
- Management of site work zones;
- How to communicate with the media and the public;
- PPE selection and limitations;
- Spill containment; and
- Monitoring site hazards.

The UXOSO, with specific responsibilities for safety and health guidance on site, will receive the training provided to general site workers and their supervisors. He also will receive advanced training in safety and health issues, policies and techniques. The UXOSO will also receive the 10-hour OSHA Construction Safety class in accordance with Engineer Manual (EM) 385-1-1, 01.A.17

#### D.8.4 REQUIREMENTS FOR EMERGENCY RESPONSE TRAINING

Prior to commencement of the project, all PRI-USA JV site personnel will review and discuss the posted emergency telephone numbers, location of spill kit materials as applicable, directions to the nearest hospital, the location of all site fire extinguishers, proper use of fire extinguishers, identify the location of first aid kits and blood-borne pathogens kits and identify the persons certified in first aid and CPR.

##### D.8.4.1 FIRE PREVENTION

Smoking and lighters are prohibited in the EZ or work zone. A cigarette butt receptacle will be provided in the support zone. No cigarette butts are to be discarded on the ground. No smoking is allowed except in an approved designated location with fire extinguisher. Procedures will be reviewed with all site personnel.

##### D.8.4.2 MEC TRAINING

All employees performing work involving the handling and destruction of MEC must meet the requirements set forth in the Department of Defense Explosive Safety Board Technical Paper 18, Minimum Qualifications for UXO Technicians and Personnel. A copy of their certificate of graduation will be kept on file at corporate headquarters. UXO qualified personnel shall have knowledge and experience

in military ordnance, ordnance components, and explosives location, identification, render safe, recovery/removal, transportation, and disposal safety precautions. UXO personnel shall have the knowledge and experience to affect safe handling and transportation of ordnance items found. Copies of certificates of this training will be kept on the project site for the duration of site operations.

#### D.8.4.3 HAZARD COMMUNICATION

All PRI-USA JV employees who will be performing work involving the handling of hazardous materials will receive hazard communication training detailing the hazards of the product, appropriate protective measures to prevent exposure to the product, as well as safe procedures for storage and handling of the product, and response to emergencies. Personnel may request a material safety data sheet (MSDS) for any hazardous material on the site at any time. PRI-USA JV personnel will be informed that the location of the MSDSs for this site will be in an MSDS binder in the UXOSO site office. This training will occur as part of the initial mobilization training at the site.

#### D.8.5 EMERGENCY TELEPHONE NUMBERS

The emergency notification sheet will be posted on-site next to the directions to the hospital and is also found in Attachment 3. Table D-5 and D-6 provides emergency points of contact and emergency phone numbers, respectively.

**Table D-5: Emergency Points of Contact**

<b>Title</b>	<b>Name</b>	<b>Office</b>	<b>Cellular</b>
NAVFAC Project Manager	Jeffrey Harlow	757-322-4787	Not Available
PRI-USA JV Project Manager	Richard Hanoski	813-343-6382	813-997-2105
Corporate Health and Safety Manager	Robert Crownover	813-343-6364	
Certified Safety Professional	Cheryl Riordan	757-486-8567	813-426-2112
UXO Operations Manager	TBD		
Senior UXO Supervisor	TBD	813-343-6336	
UXO Safety Officer	TBD	813-343-6336	

**Table D-6: Emergency Phone Numbers**

<b>Contact</b>	<b>Phone Number</b>
Fire / Police/ Ambulance	911
Poison Control Center	800-222-1222
Vieques Hospital (Centro de Salud Familiar Susana Centeno)	Admin: 787-741-0392, Emergency: 787-741-2151
AEROMED Medical Evacuation	(787) 756-3480



USA Occupational Physician	831-647-8700
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#### D.8.6 REQUIREMENTS FOR SUPERVISORY AND EMPLOYEE SAFETY MEETINGS

##### D.8.6.1 TAILGATE SAFETY BRIEFING

The UXOSO will conduct a general meeting at the beginning of each workday. Tailgate safety briefings consist of providing short training sessions in various subjects that give the site worker knowledge and confidence in performing duties in a potentially hazardous environment. PRI-USA JV management will review the SHSP and other issues as required. All site personnel will attend these briefings. These briefings will be used as an opportunity to address site-specific safety issues and will be used as an opportunity to refresh workers on specific procedures and to address new hazards and controls. The topics discussed at the safety meeting may include, but are not limited to:

- Expected weather conditions;
- General site hazards;
- Biological hazards on site;
- MEC hazards;
- PPE required at each site;
- Emergency evacuation procedures;
- Heat stress precautions;
- Buddy system procedures;
- A review of any safety violations from the previous day; and
- Any other significant events involving safety.

Additional briefings will be provided as needed concerning the use of safety equipment, emergency medical procedures, emergency assistance notification procedures, accident prevention, the work plan, and site orientation to ensure that accomplishment of the project can be carried out in a safe and effective manner. All site workers are required to attend the tailgate safety briefing daily.

Attendance records and meeting notes will be maintained with the project files. All PRI-USA JV employees and visitors at the site who may be exposed to safety or health hazards will receive site-specific training before they are permitted to engage in site operations. Personnel will not be permitted to participate in or supervise site activities until they have been trained to the level required by their specific job function and responsibility.

##### D.8.6.2 DAILY DEBRIEFING

At the conclusion of each workday, a debrief for all employees will be held if appropriate, and the day's work will be discussed to determine if changes are warranted before commencing activities the following day.

##### D.8.6.3 PERIODIC SITE TRAINING

On the first workday of each work week/period, or more frequently if needed, a pertinent topic will be selected and elaborated upon by the UXOSO during the Tailgate Safety Briefing. These safety meetings

will help ensure the safety and health of site personnel in the performance of regular work activities and in emergency situations. Safety meetings will be documented in the appropriate log and the Documentation of Training Form will be completed. Potential topics for discussion are as follows:

- Names and titles of key personnel responsible for site safety and health, and other hazards present at the site;
- Components of the SHSP;
- General site safety;
- Hazards and symptoms of contaminant exposure (chemical) as applicable;
- Routes of exposure from on-site contaminants (as applicable);
- Physical hazards (fall protection, noise, heat stress, cold stress);
- Biological hazards;
- Location and availability of written hazard communication program;
- Site and activity PPE (including purpose, donning, doffing and proper use);
- Work practices by which employees can minimize risks for hazards;
- Safe use of engineering controls and equipment use;
- Site control measures;
- MEC suspected on site;
- MEC/UXO hazards and precautions;
- Reporting requirements for UXO, spills, and emergencies;
- Personnel decontamination procedures (as applicable);
- Contingency plans (communications, phone numbers, emergency exits, assembly points, etc.);
- Worker Right to Know/ Hazard Communication;
- Emergency equipment locations and use (fire extinguishers, spill kits, first aid kits, etc.); and
- Equipment safety.

Attendance records and meeting notes will be maintained with the project files.

#### D.8.6.4 SITE VISITORS

All visitors to the site, even if escorted, must receive as a minimum, a briefing of on-site conditions, hazards, and emergency response procedures. The UXOSO will generally be the one providing the visitor briefing. All visitors to the EZ will be escorted at all times. When visitors who are not UXO qualified enter the EZ, all MEC operations will cease, and will resume again after the visitor has left the area. Visitors will not be permitted in the restricted work areas unless they have the appropriate level of OSHA training, and are medically approved as part of a company sponsored medical surveillance program. Visitors not complying with the above requirements will not enter the restricted work areas; however, they may observe site conditions from a safe distance in the support zone. All visitors will sign the Visitor's Log prior to entering the site.

#### D.8.7 TRAINING DOCUMENTATION

A training record will be kept in each employee's individual file to confirm that adequate training for assigned tasks is provided and that training is current. In addition, Documentation of Training Forms will be completed and kept on file at the work site for the duration of site activities, and made available for inspection upon request.

#### D.9 SAFETY AND HEALTH INSPECTIONS

General safety and health inspections are described throughout this APP. PRI-USA JV site personnel will conduct safety inspections on a daily basis, or more frequently if conditions warrant. The UXOSO will be responsible for daily safety inspections of the project. During periods when the UXOSO is not present, the Senior UXO Technician who is present will ensure that site personnel follow safety requirements and policy. The Safety Inspection Form will be used to record, track and provide follow up to ensure that safety deficiencies are corrected after they have been identified. A record of the safety inspection checklist will be maintained in the project file. Deficiencies will be identified, posted, and dated when the deficiencies are rectified.

##### D.9.1 EXTERNAL INSPECTIONS

External inspections are expected for this project. The NAVFAC Atlantic on-site representative assigned to the project typically conducts those inspections.

##### D.9.2 DAILY SITE INSPECTIONS

The UXOSO will be responsible for daily inspections of the project when present. The CHSM, the CSP, or designated safety personnel may make random inspections as warranted.

#### D.10 SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAM, AND COMPLIANCE

##### D.10.1 GOALS AND OBJECTIVES

The goal for PRI-USA JV on this project is zero accidents. All managers and supervisors are responsible for implementing the provisions of this APP and attached SHSP and for answering team member questions about accident prevention. Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated and understood by all team members. Managers and supervisors are expected to enforce the rules fairly and uniformly. This will be accomplished by:

- Informing team members of the provisions of the SHSP;
- Evaluating the safety performance of all team members;
- Recognizing team members who perform safe and healthful work practices;
- Providing training to team members whose safety performance is deficient; and
- Disciplining team members for failure to comply with safe and healthful work practices.

All team members are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment. PRI-USA JV recognizes that open, two-way communication between management and all team members on health and safety issues are essential to an injury-free, productive workplace. To facilitate a continuous flow of safety and health information between all team members, the following will be accomplished:

- Training all new team members, during the site-specific training, on the site safety and health policies and procedures, which will include this APP and attached SHSP;
- Training all new team members on the hazards associated with the job site;
- Conducting daily tailgate safety meeting for all team members;
- Conducting quarterly refresher type training;
- Posting and, if applicable, distributing safety information; and
- Encouraging open communications.

#### D.10.2 PRI-USA JV'S CORPORATE SAFETY PROGRAM

PRI-USA JV's corporate safety program is designed to provide the safety training and tools required to ensure that PRI-USA JV is providing the safest work environment for its employees, other project personnel, and the general population in areas adjacent to our project sites.

The CHSM and CSP have reviewed the scope of the project and based on this review, have developed this APP designed to protect health and safety during the project.

As part of the job requirements employees are required to:

- Read and follow the APP and attached SHSP; and
- Attend health and safety meetings, courses and seminars, when available, to make them more informed and aware of potential hazards that exist at the site.

#### D.10.3 SAFETY INCENTIVE PROGRAM

PRI-USA JV builds an information database for each project it undertakes, which includes the rate/occurrence of accidents and injuries. Safety data, including injury and accident occurrence, are noted and incentives such as monetary bonuses and additional training courses are provided as rewards for superior employee performance for compliance with the project APP, SHSP, and corporate safety and health policies.

#### D.10.4 SAFETY PROGRAM NONCOMPLIANCE POLICIES AND PROCEDURES

PRI-USA JV management takes seriously employee noncompliance with safety requirements. Personnel not following procedures are warned and counseled in the proper safety procedures, and if the problem persists are again counseled with notations made in their permanent record. Continued noncompliance will lead to termination. On PRI-USA JV job sites, visitors are briefed about site safety requirements and are provided with the appropriate level of PPE. If visitors refuse to follow these procedures, they will be escorted from the site.

#### D.10.5 WRITTEN PROCEDURES FOR HOLDING MANAGERS AND SUPERVISORS ACCOUNTABLE FOR SAFETY

PRI-USA JV's commitment to safety and health is documented and required from the time an offer is made to a job applicant. Managers and supervisors are made responsible for enforcing safety and health as part of their job descriptions. They are ultimately responsible for protecting the welfare of the employees as well as minimizing the potential liability associated with on the job accidents.

## **D.11 ACCIDENT REPORTING**

This section provides the requirements for implementing the accident reporting provisions of EM 385-1-1. This APP requirement applies to all work performed at the LIA.

The UXOSO will immediately notify the SUXOS and CHSM of any accidents and follow-up with the Accident Report Form (see Appendix F). The CHSM will inform PRI's Health and Safety Manager of all occurrences of accidents on site. The project Operations Manager will notify the Contracting Officer of an accident within 24 hours of its occurrence. The Project Manager will ensure all accidents are investigated.

Person(s) who become ill or injured during work activities must immediately inform the Team Leader, regardless of the severity of the illness or injury. The victim(s) will be decontaminated if the injury occurred in containment areas. In the event that the medical emergency is severe enough, the Team Leader will order a cessation of work and notify off-site emergency personnel. All personnel at the work site will use the buddy system, staying within sight of their partner. If a partner becomes incapacitated or severely ill, an ambulance will be called. In the event that a cessation of work is ordered, all personnel should:

- Assist the Team Leader, if required, in decontaminating the victim and/or administering first aid;
- Leave the contaminated area and undergo decontamination prior to entering the worker rest area; and
- Assist emergency response personnel when requested;

In the event of an accident that results in a lost workday or \$2,000 or more in property damage, an accident report will be completed and submitted within five workdays, and a copy will be provided to the client contact.

All workers receiving medical treatment, other than first aid, by a medical professional will obtain a medical release on the date of treatment stating one of the following: (1) the employee is not fit for duty; (2) the employee is fit for restricted duty; or (3) the employee is fit for duty. A copy of the release will be attached to the accident report and submitted to the client Project Officer.

### **D.11.1 EXPOSURE DATA**

All work related incidents occurring to PRI-USA JV employees should be reported for statistical purposes. Man-hours will be annotated on the Daily Operations Summary and/or the Weekly Operations Summary forms (see Appendix C of this Work Plan for forms) and transmitted to the Project Manager. The UXOSO will document and review with the CHSM and CSP the potential exposure data versus the man-hours worked per day to evaluate the association to site accidents or injury.

USA's most current OSHA 300 form will be posted on site and is presented in Attachment 1 of this APP.

### **D.11.2 ACCIDENT INVESTIGATIONS, REPORTS, AND LOGS**

Investigation and documentation of emergency responses shall be initiated by the UXOSO. This is important in all cases, but especially so when the incident has resulted in personal injury, property damage, or environmental impact. The documentation will be a written report and will be inclusive of the following:

- Accurate, concise and objectively recorded information;

- Authentic Information: Each person making an entry must sign and date that entry. Nothing is to be removed or erased. If details are changed or revised, the person making the change should strike out the old material with a single line and initial and date the change;
- Titles and names of personnel involved;
- Actions taken, decisions made, orders given, to whom, by whom, when, what, where, and how, as appropriate;
- Summary of data available;
- Possible exposure of personnel; and
- Copies of the Employer's Report of Occupational Injury or Illness (OSHA 300) or the USA Accident Report, as appropriate will be completed and forwarded to the CHSM.

All accidents will be investigated and immediate steps will be taken to prevent recurrence. The client will be notified of any accidents occurring on this project site. Should an accident occur on the site, all reports and records will be documented. Copies will be maintained on site for the duration of site activities. A permanent copy will be maintained in the PRI-USA JV Corporate Office.

#### D.11.3 IMMEDIATE NOTIFICATION OF MAJOR ACCIDENTS

Should an accident occur resulting in a fatality, \$100,000 or more in property damage, three or more persons being hospitalized, or possible adverse publicity to the Navy, immediate notification will be made to the NAVFAC Atlantic Project Manager in person, telephonically, or by email. The reporting requirement of submitting an incident report still applies.

### D.12 MEDICAL SUPPORT

A minimum of two project personnel have been trained in CPR and First Aid and have current American Red Cross certification cards. These individuals will be on-site throughout the project.

The Occupational Physician for this project will be available to provide patient specific information in case medical treatment is needed. Dr. James Vawter of Tierney-Vawter Medical Group can be reached at telephone number (831) 647-8700.

For injuries or illnesses requiring emergency medical service (EMS), notification via hardwired phone or cell phone (see Table D.6) will activate EMS. Emergency response personnel will determine the best course of treatment and the medical treatment facility where this will occur. Emergencies will be handled through the 911 Emergency System; personnel will be transported to the Vieques Hospital or other medical treatment facility as determined by EMS personnel.

#### D.12.1 ROUTE TO HOSPITAL

Exit the Vieques Naval Training Range via the main road passing Camp Garcia on the right. At the intersection of Highway 997 turn right. Head North on Highway 997 for approximately two miles. Hospital is on the right. If you reach the intersection of Highway 997 and Highway 200, you have gone too far North.

A map showing the hospital's location is presented in Attachment 3.

#### D.12.1.1 HOSPITAL INFORMATION

Name: Vieques Hospital (Centro de Salud Familiar Susana Centeno)

Telephone Number: Admin: 787 741-0392, Emergency: 787-741-2151

Location: Barrio Destino, Vieques, Puerto Rico

#### D.13 PERSONAL PROTECTIVE EQUIPMENT

When feasible, engineering controls and work practices, or a combination thereof, shall be utilized to protect site workers from safety and health hazards and to maintain personal exposures to hazardous substances below established exposure limits. The exposure limits used by PRI-USA JV will be the lower of the OSHA Permissible Exposure Limits (PEL) found in 29 CFR 1910 Subpart G and 29 CFR 1910.1000, or the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV). Other recognized published exposure levels, such as those found on MSDS, will be used if the substance is not listed by OSHA or the ACGIH. PRI-USA JV will not utilize a system of employee rotation as a means of complying with the PPE, PEL, TLV or other published limits.

##### D.13.1 TYPES OF PPE

Requirements for task and activity-specific levels of protective clothing are presented on the Activity Hazards Analyses located in Attachment 2 of this APP. Personnel performing site tasks shall use the appropriate level and type of PPE specified in this plan for each individual task. This APP makes provisions for use of the following levels of PPE, in accordance with the hazards and contamination level anticipated for each task or operation: Level A, Level B, Level C, and Level D. The following sections describe the PPE requirements for activities and locations on the site.

##### D.13.1.1 LEVEL A PROTECTION

Level A Protection is not required.

##### D.13.1.2 LEVEL B PROTECTION

Level B Protection is not required.

##### D.13.1.3 LEVEL C PROTECTION

Level C Protection is not required.

##### D.13.1.4 LEVEL D PROTECTION

The minimal level of protection that will be required of PRI-USA JV personnel and visitors at the site will be Level D. The UXOSO may increase the level of protection due to changing requirements but may not decrease the level of protection without approval of corporate safety management. The following equipment will be used for Level D protection:

- Hat – head protection from the sun;
- Hard hat for use during vegetation clearance operations and if overhead hazards or heavy equipment is encountered or operated;

- Face shield, as required in the vicinity of vegetation removal operations;
- Leather work gloves;
- Safety glasses with side shields or safety goggles;
- Hearing protection, where required by high noise levels (i.e., in the vicinity of vegetation clearance operations);
- Leather work boots with ankle support and non-slip soles. No steel-toe shoes in the vicinity of magnetometer operations; however, steel-toe shoes will be worn around heavy equipment;
- Cotton work clothes or coveralls;
- Leg chaps – when working around vegetation removal equipment;

Should personnel encounter an unusual odor, discolored soil, or an unknown item that may be hazardous, toxic, or radioactive waste, they will immediately notify their supervisor and will evacuate the site and move upwind of the suspected item. The UXOSO will notify the NAVFAC Atlantic on-site representative of the actions taken.

#### D.13.1.4.1 Eye Protection

All personnel shall use appropriate eye protection when exposed to eye hazards from flying particles, liquid chemicals, or other eye hazards. All personnel shall use eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

- All personnel who wear prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.
- Eye protection shall be distinctly marked to facilitate identification of the manufacturer.

Protective eye equipment purchased after July 5, 1994 shall comply with ANSI Z87.1-1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection," which is incorporated by reference as specified in Section 1910.6.

#### D.13.1.4.2 Head Protection

When working in the vicinity of vegetation clearance equipment and heavy equipment operations, hard hats shall be worn. Where hard hats are not required, it is recommended that caps be worn to protect the head from the sun.

#### D.13.1.4.3 Body Protection

Cotton work clothing or coveralls are recommended for reducing static electricity in MEC operations.

#### D.13.1.4.4 Foot Protection

Due to the uneven working surfaces and potential for tripping hazards common to an outdoor environment, all PRI-USA JV personnel shall wear sturdy leather work boots with ankle support and non-slip soles. Personnel using magnetometers for the detection of MEC will not wear steel-toe safety shoes,



as they will affect the readings of the equipment. However, personnel working with or in the vicinity of heavy equipment will be required to wear steel-toe shoes.

#### D.13.1.4.5 Hand Protection

PRI-USA JV selects and requires employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; thermal burns; and harmful temperature extremes. For most operations on this site, leather gloves will provide adequate protection against minor cuts, which are a hazard in most site operations. Chemical gloves will be required in fueling operations.

#### D.13.1.4.6 Hearing Protection

PRI-USA JV shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater. Hearing protectors shall be replaced as necessary. Hearing protection will be required for all personnel working in and around any operations likely to produce high noise levels, such as during the use of chain saws and weed-eaters during vegetation clearance operations. If any operations are to occur in the vicinity of heavy equipment operations, hearing protection is also required there.

### D.13.2 PROPER PPE SELECTION

Each task outlined in the Statement of Work has been assessed to determine the risk of personnel exposure to safety and health hazards, which may be encountered during its conduct. The hazard assessment is based on available information pertaining to the historical use of the site, site contaminant characterization data and the anticipated operational hazards. This information has been provided by the client, or collected by PRI-USA JV site personnel. The PPE assigned as a result of the hazard assessment represents the minimum PPE to be used during initial site activities. Since hazard/risk assessment is a continuing process, changes in the initial types and levels of PPE will be made in accordance with information obtained from the actual implementation of site operations and data derived from the site monitoring. As a general rule, the levels of PPE will need to be reassessed if any of the following occur:

- Commencement of a new work phase, such as the start of drum sampling or work that begins on a different portion of the site;
- Change in job tasks during a work phase;
- Change of season/weather;
- When temperature extremes or individual medical considerations limit the effectiveness of PPE;
- Contaminants other than those previously identified are encountered;
- Change in ambient levels of contaminants; and
- Change in work scope, which affects the degree of contact with contaminants.

During the selection of PPE, the CHSM, UXOSO, and site personnel will also take into consideration the following factors:

- Limitations of the equipment;
- Work mission duration;

- Temperature extremes;
- Material flexibility; and
- Durability/Integrity of the equipment.

#### D.13.3 UPGRADING/DOWNGRADING PPE

If work tasks are added or amended after completion and approval of the APP/SHSP, the UXOSO will conduct the task hazard assessment and consult with the CHSM or his staff. The level and type of PPE to be used will be identified. The UXOSO can increase the level of PPE when the situation warrants, due to an increase in hazardous exposure. Any decreases in the level of PPE must be approved by the CHSM and/or CSP, only after review of documentation demonstrating that the conditions and/or potential for hazardous exposure are reduced enough to justify the downgrade.

#### D.13.4 GENERAL REQUIREMENTS

All personal protective equipment shall be provided, used, and maintained in a sanitary and reliable condition where it is necessary. PPE is required due to hazards of processes or environment, chemical hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact. All PPE will be used in the manner for which it was designed. The assignment of PPE will be based upon hazard analysis, and the equipment will be selected based on its protection factor against site hazards.

#### D.13.5 INSPECTIONS

Each piece of PPE will be inspected daily prior to use. Defective or damaged personal protective equipment shall not be used. It shall be removed from service and turned in for repair, or removed from the site for disposal and replaced with new PPE. During the work task, buddy teams should periodically inspect each other's PPE for evidence of chemical attack, such as discoloration, swelling, stiffening, or softening.

#### D.13.6 CLEANING AND DECONTAMINATION

The UXOSO will be responsible for ensuring that PPE is in good, clean, working order prior to issuing the PPE the first time. Once issued, site personnel will ensure that re-usable articles of PPE are maintained in a clean and sanitary fashion. For items used inside an EZ, site personnel will follow the requirements of the Site-Specific Decontamination Plan and ensure that the PPE is properly decontaminated before removing the item from the EZ or Contaminant Reduction Zone.

#### D.13.7 MAINTENANCE

Maintenance of PPE can vary greatly, based upon the complexity of the PPE and the intricacy of the repair involved. The UXOSO will become familiar with the manufacturer's recommended maintenance and when possible repair defective PPE. If unable or unauthorized to conduct the repair, the UXOSO will return the item to the manufacturer for repair, or procure a replacement.

#### D.13.8 STORAGE

PPE will be stored in a location, which is protected from the harmful effects of sunlight, damaging chemicals, moisture, extreme temperatures, impact, or crushing. If needed, the UXOSO will designate a specified area for the storage of PPE.

#### D.13.9 PPE PROGRAM EFFECTIVENESS

Based on the inhalation hazard and potential chemical exposures on this site, Level D PPE is considered adequate for the work that is to be accomplished at the site. If work tasks are added to the SOW after approval of this APP, the SUXOS and/or UXOSO (as applicable) shall identify and assess the task hazards and relay that information to the CHSM and CSP, who will prepare an amendment to the APP and submit the amendment for approval from NAVFAC Atlantic. The amendment will be added to the APP upon NAVFAC Atlantic approval.

The UXOSO will ensure PPE use complies with all applicable OSHA and PRI-USA JV requirements. It is the responsibility of each employee to report to work wearing proper attire and to assemble the necessary PPE prior to initiating donning procedures.

#### D.13.10 TRAINING

PIR-USA JV shall provide training to each employee who is required by this section to use PPE. Each affected employee shall demonstrate an understanding of the training, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE. Each such employee shall be trained to know at least the following:

- The decisions and justifications used to select each piece of PPE;
- The nature of the hazards and the consequences of not using PPE;
- What PPE will be required for the conduct of each task;
- When PPE will be required during the performance of each task;
- How to properly don, doff, adjust, and wear each piece of PPE;
- The proper inspection, cleaning, decontaminating, maintenance, and storage of each PPE item used; and
- The limitations of the PPE.

All personnel receiving PPE training will be required to demonstrate an understanding of the training topics and the ability to correctly use the PPE. This will be accomplished through the UXOSO supervising and visually inspecting each individual's ability to properly don and use the PPE during initial use of the PPE.

When the UXOSO has reason to believe that any affected employee who has already been trained does not have the understanding and skill required he should retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete; or
- Changes in the types of PPE to be used render previous training obsolete; or
- Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

Upon completion of the training and after each employee has successfully demonstrated the requisite understanding, the UXOSO will complete the Training Form (see Table D-7). This identifies: the employees who attended the training course and successfully demonstrated the required knowledge; the date(s) of the training and demonstration session(s); and the PPE covered by the training session.

**Table D-7: Certification of PPE Training**

<b>SITE INFORMATION</b>							
Site Name:							
Location:				Instructor(s):			
Date of Classroom Instruction:				Date of Demonstration:			
<b>PPE TRAINING COURSE ATTENDANTS</b>							
The following personnel have attended the site PPE training course, and demonstrated, through use, an understanding of the donning/doffing procedures, inspection, cleaning, maintenance, storage, limitations, and proper disposal of the PPE listed on this certificate. These personnel are now qualified to use the site- and task-specific PPE, as required by the SHSP.							
Name		Organization		Name		Organization	
<b>TYPES AND LEVELS OF PPE ADDRESSED DURING TRAINING</b>							
Trainer's Initials	Personal Reviewed	Protective	Equipment	Trainer's Initials	Personal Reviewed	Protective	Equipment
<b>CERTIFICATION</b>							
I the undersigned do hereby certify that the above listed personnel have received the requisite training and successfully demonstrated their ability to use the PPE listed above, in accordance with the PIR-USA JV Personal Protective Equipment Program.							
Name (printed):			Signature:			Date:	

## **D.14 PLANS, PROGRAMS, AND PROCEDURES**

The following subsections describe the plans, programs, and procedures that will be used during site operations.

### **D.14.1 LAYOUT PLANS**

Layout plans are not applicable for this Project, as temporary structures will not be constructed.

### **D.14.2 EMERGENCY RESPONSE PLAN AND CONTINGENCY PROCEDURES**

The UXOSO will perform pre-emergency planning before starting field activities and during the mobilization and site-specific training phase of the project, and will coordinate emergency response with police/fire personnel and the paramedic and medical clinic. Pre-emergency planning meetings shall be used to inform local authorities of the nature of site activities that will be performed under the SOW and the potential hazards that activities may pose to site workers, the environment, and the public.

#### **D.14.2.1 PROCEDURES AND TESTS**

It shall be the UXOSO's responsibility to post emergency procedures and contact information in accordance with the requirements of this APP/SHSP. Pre-emergency planning tasks include:

- Post emergency instructions and call numbers at accessible telephone locations;
- Inspect all emergency equipment and supplies to ensure they are in proper working order;
- Provide a site map marked with planned evacuation routes, assembly points, and emergency equipment and supplies;
- Provide a map with the route to the hospital marked and highlighted, with copies of this map posted in the emergency evacuation vehicle and all other site vehicles;
- Conduct an emergency response drill to test the effectiveness of the Emergency Response Plan and Contingency Procedures (ERCP);
- Review and revise the ERCP in the event of a failure of the plan in an actual or staged emergency, or when changes in site conditions or scope of work affect the ERCP;
- Before normal activities are resumed, onsite personnel must be prepared and equipped to handle another emergency. These follow-up activities should be completed;
- The CHSM will notify appropriate government agencies as required (Reminder: OSHA must be notified if there have been any fatalities or three or more hospitalizations);
- All equipment and supplies restocked, serviced and inspected; and
- Review and revise all aspects of the SHSP as necessary to address and prevent future emergencies of this type.

As part of mobilization training, prior to start of project, all personnel will review the points of contact list and where it is posted as well as location of the nearest hospital. A meeting place off site will be identified in case of emergency evacuation and the responsibilities of all persons on site.

- All personnel will review the locations of fire extinguishers and be competent to use one properly; and

- All emergency telephone numbers will be posted next to the directions to the hospital map on site.

#### D.14.2.2 POTENTIAL SITE EMERGENCIES

There are several emergencies, which could reasonably be anticipated during project activities, including:

- Heat stress;
- Worker injuries, slips, trips or falls, and/or illness; and
- Fires and explosions.

#### D.14.2.3 PERSONNEL AND LINES OF AUTHORITY

In the event of an emergency, the UXOSO will be designated as the On-Scene Incident Commander and will have the overall responsibility for implementation of the ERCP and coordination with responding off site emergency services.

Specific responsibilities of the UXOSO include, but are not limited to, the following:

- Notifying local police, fire department, and other off-site emergency units, as required;
- Notifying the NAVFAC Atlantic Project Manager and providing updates as conditions change;
- Directing offsite emergency response personnel to the scene and providing assistance;
- Site control;
- Completing any follow-up reports;
- Rescuing personnel;
- Accounting for all site personnel and visitors;
- Providing emergency first aid;
- Preventing further injury of personnel;
- Providing current status of the incident to the CHSM and/or CSP;
- Ensuring that on-site emergency response personnel don the proper PPE if needed;
- Assisting on-site emergency response personnel with treatment and transport of sick/injured;
- Providing medical background information of the sick/injured and applicable site health and safety information to the off-site emergency medical responders; and
- Accompanying sick/injured personnel to the hospital.

If the emergency involves employee injury, UXOSO will complete the Accident Report. The CHSM will be responsible for notifying applicable Federal, state and local authorities/agencies. Once the emergency has been resolved, the UXOSO, Project Manager and CHSM will conduct a follow-up investigation and critique. Actions will be taken to prevent recurrence.

All PRI-USA JV personnel and visitors will be responsible for:

- Reporting any site emergencies to the SUXOS or UXOSO;

- Knowing the exit location and evacuation route within the EZ;
- Knowing the pre-planned evacuation assembly point and going there in the event of an emergency; and
- Assisting emergency response personnel as requested.

#### D.14.2.4 EMERGENCY RECOGNITION AND PREVENTION

An emergency is an unplanned event that threatens the safety of any personnel. Compliance with this APP can assist in the prevention of anticipated site emergencies. These emergency situations can easily be recognized by visual observations, worker complaints, or monitoring instruments.

Prevention of emergencies will be aided by the effective implementation of the SHSP, personnel awareness, contingency planning, and on site safety meetings. Anticipated emergencies may include physical injury, illness, fire, explosion, chemical spill or release, inclement weather, and natural disasters. The UXOSO will use the site-specific briefing and/or the Tailgate Safety Briefings to inform site workers of the recognition, prevention, and response procedures for each anticipated emergency.

In the event of an emergency, site personnel will be notified by either an alarm or verbal communication. Personnel will be notified to:

- Stop work activities;
- Evacuate to the designated assembly point at the support zone;
- Begin emergency procedures; and
- Notify off-site emergency response organizations.

After evacuation, the UXOSO will account for all personnel, ascertain information about the emergency and advise responding onsite personnel. The UXOSO will contact, advise, and coordinate with responding off-site emergency personnel if deemed necessary by the situation.

In all situations that require evacuation, personnel shall not re-enter the work area until:

- The conditions causing the emergency have been corrected;
- The hazard has been reassessed;
- The SHSP has been revised and reviewed with onsite personnel, if needed; and
- Instructions have been given for authorized re-entry by the UXOSO.

#### D.14.2.5 SAFE DISTANCES AND PLACES OF REFUGE

The UXOSO will determine safe distances and places of refuge. Prior to the start of each workday, the UXOSO or SUXOS (as applicable) will hold a safety meeting with all personnel and discuss the following:

- Times when the gate to project sites may be locked;
- Who has the gate key or combination on site;
- Evacuation routes from work areas;
- The assembly point to be used in the event of an emergency;

- Locations of the nearest fire extinguishers and spill containment equipment; and
- Discussion on specific health and safety concerns of personnel.

#### D.14.2.6 EVACUATION PROCEDURES

The UXOSO will establish evacuation routes. Evacuation notification will be one long blast on an air horn, vehicle horn, or direct verbal communication. If evacuation is necessary, all personnel are to:

- Gather equipment to the extent safely possible; and
- Evacuate to the vehicle(s) location and prepare to move out.

#### D.14.2.7 MEDICAL EMERGENCY PROCEDURES

Any person(s) who become ill or injured during work activities must immediately inform the UXOSO regardless of the severity of the illness or injury. All personnel at the work site will use the buddy system. All personnel using the buddy system will stay within sight of their partner. If a partner becomes incapacitated or severely ill, the UXOSO will be called. In the event that a cessation of work is ordered, all personnel should:

- Assist the UXOSO or first responders if required, in administering first aid; and
- Leave the area if the hazard warrants such action.

If the medical emergency is not severe, the victim will be treated on site by the First Responders with additional treatment at the hospital if required. If the medical emergency is serious, the victim would be brought to the hospital via ambulance, where the victim would be treated. The UXOSO will provide the hospital personnel with the victim's medical background information and information on how the injury or illness occurred.

It is not anticipated that hazardous waste decontamination shall be required during any activities under the SOW. This determination has been made based upon archival documentation and past activities conducted at the site. Basic cleaning and disinfection is all that will be required prior to most types of treatment. If a worker is accidentally injured using chemicals brought onto the site, the first aid procedures described in the MSDS would be followed by the UXOSO to clean as much of the chemical off as possible before treatment.

#### D.14.2.8 BLOODBORNE PATHOGENS PROGRAM

The strategy of "Universal Precautions" was developed by the Centers for Disease Control to address concerns regarding transmission of Human Immunodeficiency Virus (HIV). This concept stresses that all sources should be assumed to be infectious for HIV, hepatitis B virus, and other blood-borne pathogens. The philosophy of universal precautions shall be applied whenever PRI-USA JV employees render first aid involving potential contact with blood, body fluids, or other potentially infectious materials. All blood and body fluids will be treated as if they are infectious. PPE and clean-up procedures will be implemented accordingly.

##### D.14.2.8.1 Engineering Controls

Engineering controls will be used whenever possible to eliminate or reduce the potential for employee exposure, and will be periodically examined, maintained or replaced to ensure their effectiveness. PRI-



USA JV employees shall observe "universal precautions," and treat all body fluids as potentially infectious materials. PRI-USA JV shall provide hand-washing facilities readily accessible to employees. Where the installation of hand washing facilities is not feasible, appropriate antiseptic cleanser and clean paper or cloth towels shall be provided. PRI-USA JV employees shall wash their hands and any other potentially exposed skin with soap and running water as soon as possible:

- After removing gloves or other personal protective equipment.
- After contact with potentially infectious materials.
- Even after washing with antiseptic as described.
- PRI-USA JV employees shall flush eyes or other mucous membranes with copious amounts of water as soon as possible after contact of these areas with potentially infectious materials.

For emergency first aid situations involving multiple victims, equipment shall not be used on different victims unless it has been properly decontaminated or if the victim's medical condition would be seriously affected by a delay in treatment.

#### D.14.2.8.2 Safe Work Practices

Safe work practices will be implemented whenever possible to eliminate or reduce the potential for employee exposure. Employees shall wash their hands immediately or as soon as feasible after removal of gloves or other PPE. Employees shall wash hands and any other skin with soap and water, or flush mucous membranes with water immediately following contact with blood or potentially infectious materials.

If potentially contaminated sharps are encountered, the item shall immediately be disposed of in an appropriate container or decontaminated.

Eating, drinking, smoking, applying cosmetics or lip balm, handling of contact lenses, any hand-to-face activities, or storage/handling of food is prohibited in all areas where potentially infectious materials are present.

Equipment that has become contaminated will be decontaminated prior to servicing or storage, unless decontamination is not feasible, in which case the equipment will be disposed of properly in appropriately labeled and color-coded containers.

#### D.14.2.8.3 Personal Protective Equipment

When occupational exposures remain after the implementation of engineering and work practice controls, appropriate PPE will be utilized to control employee exposures.

PRI-USA JV shall provide appropriate personal protective equipment including gloves, face masks, eye protection, mouthpieces, etc., for protection against potentially infectious materials.

Personal protective equipment shall not allow potentially infectious materials to pass through or reach an employee's clothes, skin, eyes, mouth, or other mucous membranes during normal use for the expected duration of time for which the PPE will be used.

Employees shall use the appropriate personal protective equipment unless, in unusual circumstances, the employee believes that using the protective equipment will prevent the administering of first aid or would pose an increased risk. Any incident where the use of protective equipment is declined shall be

investigated and documented by the UXOSO and be approved by the CHSM.

Single use protective equipment, such as surgical gloves, shall be disposed of after each use, or as soon as possible after the equipment has become damaged.

Multi-use protective equipment, such as coveralls or utility gloves, shall be cleaned and decontaminated after each use or when they become contaminated in order to maintain its effectiveness.

Multi-use protective equipment shall be removed, then disposed of or repaired as soon as possible after becoming damaged.

When PPE is removed, it will be placed in an appropriately designated area or container for storage, washing, decontamination or disposal. PPE shall be removed and disposed or decontaminated before leaving the area.

Gloves will be worn when it can be reasonably anticipated that the employee may have hand contact with potentially infectious materials.

Disposable (single use) gloves will not be washed for reuse and will be disposed of after each use or if their ability to function as a barrier is compromised.

Utility gloves may be decontaminated for re-use if the integrity of the glove is not compromised. However, they must be discarded if they exhibit signs of deterioration or when their ability to function as a barrier is compromised.

Masks in combination with eye protection devices, such as safety glasses, goggles or face shields, will be worn whenever blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

#### D.14.2.8.4 Decontamination Procedures

All equipment, working surfaces and non-working surfaces shall be decontaminated after contact with potentially infectious materials. A solution of ten parts water to one part bleach or equally effective material shall be used to clean contaminated areas.

Contaminated sharp objects shall be cleaned up using mechanical means, such as a brush and dustpan. Sharp objects shall not be picked up directly with the hands.

Two pairs of gloves, inner surgical gloves and outer utility gloves, shall be worn for cleaning contaminated surfaces. A smock or apron and eye protection shall also be worn.

Only those employees directly involved with the decontamination efforts shall be allowed in the work area while cleaning is taking place.

All cleaning equipment shall be disinfected or disposed of in accordance with this Program.

For minor injuries where the employee is able to return to work, the injured employee shall clean up their own blood or other potentially infectious materials.

#### D.14.2.8.5 Housekeeping and Waste Disposal

The work site will be maintained in a clean and sanitary condition to prevent the spread of contamination to other areas of the facility. All equipment and working surfaces will be cleaned and decontaminated after contact with blood or other potentially infectious materials. Contaminated work surfaces and equipment shall be decontaminated with an appropriate disinfectant immediately after they become contaminated in accordance with the decontamination section of this program. Regulated waste, other than contaminated sharps, shall be placed in containers which are: closable, constructed to contain all contents and prevent leakage, properly labeled or color-coded, and closed prior to removal or replacement. Labels or color-coding shall be fluorescent orange or orange-red, and display the biohazard symbol in a contrasting color.

Regulated waste containing contaminated sharps will be placed in containers which are: closable, puncture resistant and leak proof on sides and bottom, properly labeled or color-coded, and closed prior to removal or replacement. Contaminated clothing, equipment and other materials shall be handled as little as possible and with minimum agitation. Bags containing contaminated materials shall not be carried or handled from the bottom. All regulated waste will be disposed of in accordance with applicable federal, state, and local regulations.

#### D.14.2.9 EMERGENCY MEDICAL FACILITIES

For most anticipated types of on-site injuries, site personnel will report to the UXOSO, who will examine the injury and have the first aid certified personnel provide treatment. In cases of more serious injuries or illnesses, the victim will still report to the UXOSO (or the UXOSO will come to the victim) and the UXOSO will examine the victim and determine if further medical treatment is indicated. If required, the UXOSO will transport the victim to the hospital or he will summon an ambulance to do so, depending on the nature and severity of the injury.

#### D.14.2.10 CRITERIA FOR ALERTING THE LOCAL COMMUNITY RESPONDERS

In the event of an on-site emergency the individual team leader or first person aware of the emergency will contact the UXOSO. If the order is given to evacuate the site of all personnel, each on-site team leader will assemble, account for, and evacuate all team personnel to the pre-designated staging area in the support zone. The first responders shall render emergency first aid treatment and the UXOSO will authorize site personnel to assist, where required. If the injury is serious, the UXOSO will make the decision to summon an ambulance to take the victim to the hospital. There is a local Fire Department on Vieques Island, and should circumstances warrant their assistance, they would be called by the UXOSO. The UXOSO will assure that the Fire Department, if called to the site, do not approach any closer than fragmentation distance from the fire.

#### MATERIAL SAFETY DATA SHEETS

As part of the Hazard Communication Program, an MSDS binder will be maintained on site, which includes copies of MSDSs for all hazardous materials brought onto the site by PRI-USA JV. It will be kept in the UXOSO site office during operations. This MSDS binder will be available on request to all site personnel during all working hours of the site. If site workers have further questions about any of the hazardous materials they come into contact with, the UXOSO or the CHSM or his staff will locate the required information and pass it on to the employee. If an employee is injured as a result of exposure to a chemical onsite, that MSDS will be retrieved and given to the medical providers.

#### D.14.2.11 TRAINING

Training in emergency procedures will be accomplished by performing drills. After any drill or real emergency scenario, the Project Manager, CHSM (or his staff), and UXOSO will evaluate the situation

and determine any potential areas for improvement in the procedures. Procedures will be updated accordingly.

#### D.14.3 SPILL PLANS

PRI-USA JV will conduct cleanup operations in the event of a spill of hazardous material (e.g., fuel or oil from UXO field operations). The UXOSO will manage the collection of the spilled material with absorbent pads and containerize the pads and/or materials within Department of Transportation approved drums for disposal as potential contaminated hazardous waste. A complete spill kit will be maintained on site when spills are a potential hazard.

In the event of a spill or leak of any potentially harmful material (regardless of quantity), on-site personnel will:

- Notify the UXOSO immediately;
- The UXOSO shall notify the Project Manager of the spill/leak with relative information (location, time, chemical identity, quantity, hazards listed on the MSDS), and any corrective actions/measures taken;
- Locate the source and stop the leak/spill if it can be done safely (as dictated by the UXOSO);
- Begin containment and recovery of spilled material (as directed by the UXOSO), using appropriate PPE and spill clean-up equipment and materials; and
- Once notified, the Project Manager will in turn notify the NAVFAC Atlantic Project Manager and the Contracting Officer. The NAVFAC Atlantic Project Manager will advise PRI-USA JV if any additional actions are necessary.

#### D.14.4 FIREFIGHTING PLANS

In the event of a fire or explosion, the UXOSO will notify the police, fire department, and ambulance, as required. The UXOSO will also contact the NAVFAC Atlantic on-site representative, the NAVFAC Atlantic Project Manager, and the Project Manager and escort the response personnel to the location of the fire or explosion. The UXOSO will determine the extent of the fire, coordinate and manage fire suppression effort until the fire department arrives, use available on-site fire extinguishers on incipient stage fires only, and provide emergency first aid as needed. Site personnel will not fight fires containing explosives. The responding fire department personnel will be informed of the nature of the fire and, if explosives are present, the fragmentation distance from which to fight or contain the fire.

The decision on whether or not to try to extinguish a fire using available site personnel and equipment will be made by the UXOSO and based on whether the fire is small, large, or involves explosives.

##### D.14.4.1 SMALL FIRES

A small fire is defined as a fire that can most likely be extinguished by site personnel using portable extinguishers. A small fire must also be free and clear of explosive materials, especially MEC. If a small fire occurs, the UXOSO will direct site personnel to perform the following, if safe to do so:

- Evacuate unnecessary personnel to an upwind position;
- Attempt to extinguish the fire using portable fire extinguishers or by smothering;
- Remove any essential or flammable items from the path of the fire; and

- Notify emergency response services (fire, police, ambulance, hospital, etc.) as needed.

If a fire extinguisher is used, this must be immediately reported to the UXOSO. The fire extinguisher must be immediately removed from service until it can be recharged. Another fire extinguisher must be made available to the operating area. The area around where the fire occurred must be watched for a minimum of 30 minutes after the fire has been extinguished to assure re-ignition does not occur. If personnel are not working in the area, the UXOSO should check the area of the fire periodically to assure re-ignition does not occur.

#### D.14.4.2 LARGE FIRES

A large fire is defined as a fire, which cannot be extinguished, or which, due to its size, cannot be extinguished using portable fire extinguishers. In the event that a large fire occurs and the fire does not involve explosive materials, the UXOSO will direct personnel to conduct the following, if safe to do so:

- Evacuate all non-essential personnel from the site to an upwind location;
- Notify the Fire Department and other emergency response services (police, ambulance, hospital, etc.) as needed;
- Order the appropriate level of protective equipment to be worn by personnel responding to the fire;
- Attempt to control the fire to the extent possible; and
- Remove any essential or flammable items from the path of the fire.

#### D.14.4.3 FIRES INVOLVING EXPLOSIVE MATERIALS

If a fire occurs that involves explosive materials such as chemicals, fuels or MEC, the UXOSO will order the immediate evacuation of all site personnel to an upwind assembly point at least fragmentation distance from the fire site. The UXOSO will then notify the Fire Department and any other emergency services (police, ambulance, hospital, etc.) as needed. At no time will PRI-USA JV personnel fight a fire involving explosive materials, nor will they allow outside emergency personnel to do so. The Fire Department personnel may not enter any closer than fragmentation distance from the fire and they may spray water to surrounding buildings or structures in order to prevent the spread of fire.

After the fire has burned itself out, the site must be barricaded and entry prohibited until adequate cooling time has passed (at least 24 hours for a large fire). Explosive materials that may not have discharged during the fire may still be liable to function in the presence of extreme heat. After the site has cooled down, the UXOSO will inspect the site and the condition of any MEC involved in the fire, and make a determination as to whether or not the site is safe for others to enter.

If MEC is still intact, the UXOSO will determine whether or not it is considered to be hazardous. If it is non-hazardous, it will be moved to a secured collection point, and will be sold to a qualified recycler at the end of the project. If it is considered hazardous, a UXO team will destroy it in place. All MEC must be either removed or destroyed in place before non-UXO qualified personnel are permitted to enter the area.

If non-UXO qualified personnel must enter the site for purposes of fire investigation, they must receive a briefing on the potential hazards of MEC on the site. They must be accompanied at all times by a UXO-qualified employee of PRI-USA JV. **NO OUTSIDE PERSONNEL WILL BE PERMITTED ONTO THE SITE WHILE THERE IS A KNOWN MEC HAZARD PRESENT.** If during the course of the investigation MEC is observed, the site will be evacuated of all non-UXO qualified personnel until the site can be rendered safe for re-entry.

#### D.14.4.4 EXPLOSIONS

In the event of an explosion, the UXOSO will order the evacuation of all site personnel to a safe, upwind assembly point at least fragmentation distance away. The UXOSO will then notify all necessary emergency response services. After an explosion has occurred the site will remain barricaded a minimum of 30 minutes before entry is permitted. The UXOSO will enter the site with a team member and inspect for presence and condition of MEC. If MEC is non-hazardous, it will be removed to a secured collection point for later sale to a qualified recycler. If MEC is hazardous a UXO Team will be notified and the MEC will be destroyed by the UXO team. Non-UXO qualified personnel may not enter the area until all known MEC has been removed or destroyed. If non-UXO qualified personnel need to enter the site, they must first be briefed on the potential hazards of the site. They must be accompanied at all times by an UXO-qualified employee. If MEC is discovered during the course of their visit, they must immediately leave the site until it can be rendered safe for re-entry.

#### D.14.4.5 SAFE DISTANCES AND PLACES OF REFUGE

The EZ of this project is the actual project footprint and an additional approximately 5,640 feet around it for fragmentation distance. This distance is based on the fragmentation distance of the 16"/50 projectile. This fragmentation distance may change with the concurrence of the Navy Representative and the Title II Contractor, based on the fragmentation distance of the item being disposed of. Outside of that distance is the support zone. Normally, during an evacuation, personnel would evacuate to the support zone, where the UXOSO would take role and account for all site personnel. An exception to this rule would be in the case of encountering a chemical warfare materiel item, in which case personnel would evacuate at least 450 feet upwind of the item. This location would change with the shifting winds, so it cannot be specifically identified.

#### D.14.5 WILD LAND FIRE PREVENTION PLAN

In order to prevent grass fires from starting in the area, PRI-USA JV will control employee smoking. Smoking will only be permitted in designated areas. These areas will be equipped with a fire extinguisher, as well as a can containing sand, where cigarette butts can be safely discarded without concern for the spread of fire. All lighters and matches will remain in the designated smoking area and will not be permitted into the site. All flammable liquids brought to the site for the purpose of fueling equipment, will be stored in an approved flammable liquid container in a designated flammable liquid storage area. No smoking will be permitted within 50 feet of the storage or use of flammable materials.

In the event that a grass fire does start in the area, all personnel will be trained in the use of fire extinguishers, and fire extinguishers will be available to all site operations. Fire extinguishers are designed for the incipient stages of a fire, which is when they are most effective. If a large fire starts, employees will be instructed to evacuate the area to at least fragmentation distance from the site and to contact the Fire Department. The Fire Department will remain at least fragmentation distance from the fire and implement applicable procedures to prevent the fire from spreading outside of the fragmentation distance.

#### D.14.6 MAN OVERBOARD/ABANDON SHIP PLAN

Due to the fact that water operations are not expected to occur on this site, no Man Overboard/Abandon Ship Plan is required.

#### D.14.7 HAZARD COMMUNICATION PROGRAM

The program establishes procedures for PRI-USA JV employees who handle and store chemical

products at PRI-USA JV sites. It ensures that hazards of all chemicals purchased are evaluated and the information concerning their hazards is transmitted to employees. The delivery of information is to be accomplished by employee training, container labeling, and other forms of warning and MSDS. All MSDS are requested from the suppliers at the time of order. If not available then a recent MSDS will be downloaded off the Internet.

- As part of the Hazard Communication Program, an MSDS binder will be maintained onsite, which includes copies of MSDSs for all hazardous materials brought onto the site by PRI-USA JV. It will be kept in the UXOSO office during operations, and all PRI-USA JV personnel will be made aware of that fact. This MSDS binder will be available on request to all site personnel during all working hours of the site. If site workers have further questions about any of the hazardous materials they come into contact with, the PRI-USA JV CHSM or his staff will locate the required information and pass it on to the employee.
- All PRI-USA JV employees who will be performing work involving the handling of hazardous materials will receive Hazard Communication training detailing the hazards of the product, appropriate protective measures to prevent exposure to the product, as well as safe procedures for storage and handling of the product, and response to emergencies. Personnel may request an MSDS for any hazardous material on the site at any time. This training will occur as part of the initial mobilization training at the site and will be documented on the Documentation of Training Form.

The UXOSO must ensure that project personnel can immediately obtain the required information about chemicals of concern during an emergency.

#### D.14.8 RESPIRATORY PROTECTION PLAN

Due to the type of work taking place, respirators are not expected to be required on this site. Should unforeseen hazards develop, which would require a respirator, the Respiratory Protection Program would be followed per the USA Corporate Safety and Health Program.

#### D.14.9 HEALTH HAZARD CONTROL PROGRAM

See Attachment 7.

#### D.14.10 LEAD ABATEMENT PLAN

As lead is not expected to be a contaminant on this site, a Lead Abatement Plan will not be required. However, if lead should be encountered, a Lead Abatement Plan would be prepared in accordance with the requirements of the USA Corporate Safety and Health Program.

#### D.14.11 ASBESTOS ABATEMENT PLAN

As asbestos is not expected to be encountered on this outdoor site, an Asbestos Abatement Plan is not required.

#### D.14.12 ABRASIVE BLASTING

Abrasive blasting is not required on this project.

#### D.14.13 CONFINED SPACE

Work in confined spaces is not expected to occur on this project as this project is a surface clearance. Should a change in the scope of work require it, the Confined Space Program would be implemented per the USA Corporate Safety and Health Program.

#### D.14.14 HAZARDOUS ENERGY CONTROL PLAN

The work on this project should not require the use of equipment that would require a Hazardous Energy Control Plan. Should a change in the scope of work require it, the Lock Out/Tag Out program would be implemented per the USA Corporate Safety and Health Program.

#### D.14.15 CRITICAL LIFT PROCEDURES

PRI-USA JV will not be performing any crane operations on this project, so critical lift procedures will not be required.

#### D.14.16 CONTINGENCY PLAN FOR SEVERE WEATHER

Rain and severe wind conditions can constitute a safety hazard to field operations at this site. The UXOSO will monitor the weather closely. If the area becomes wet, muddy, slippery, or windy such that an unacceptable level of risk exists for personnel who are working in proximity to MEC items, then MEC operations will cease until the UXOSO determines it to be safe to continue.

No MEC operations will take place if an electrical storm is within 10 miles of the site. An electrical storm monitor will be used to determine if an electrical storm is approaching. MEC operations will cease when an electrical storm is within 10 miles of the site, and will not resume again until the UXOSO determines that the electrical storm is at least 10 miles past the site.

Daily weather conditions will be a part of the daily briefing. Many people incur injuries or are killed due to misinformation and inappropriate behavior during severe weather. During severe weather, project personnel will seek shelter in an appropriate location (i.e., building or vehicle).

The individual is ultimately responsible for his/her personal safety and has the right to take appropriate action when threatened by severe weather.

##### D.14.16.1 SAFE LOCATIONS DURING SEVERE WEATHER AND LOCATIONS TO AVOID

No place is absolutely safe from severe weather; however, some places are safer than others.

- Large enclosed structures (substantially constructed buildings) tend to be much safer than smaller or open structures;
- The risk for lightning injury depends on whether the structure incorporates lightning protection, construction materials used, and the size of the structure; and
- In general, fully enclosed metal vehicles such as cars, trucks, buses, or vans with the windows rolled up, provide good shelter from many weather conditions.

AVOID being in or near:



- High places and open fields, isolated trees, rain or picnic shelters, communication towers, flagpoles, light poles, bleachers (metal or wood), metal fences, water (lakes, streams, rivers, etc.) or wet surfaces.

When inside a building AVOID:

- Use of the telephone, washing your hands, or any contact with conductive surfaces with exposure to the outside such as metal door or window frames, electrical wiring, telephone wiring, cable TV wiring, or plumbing if lightning is a factor.

#### D.14.16.2 SAFETY GUIDELINES FOR INDIVIDUALS

Generally speaking, identify and seek shelter that is appropriate for the type of severe weather you are encountering. Proper shelter will always include a sound structure and removes you from the elements.

When available, pay attention to weather warning devices such as National Oceanic and Atmospheric Administration weather radio and/or credible weather detection systems. However, do not let this information override good common sense.

#### D.14.17 ACCESS AND HAUL ROAD PLAN

There are no plans to create access and haul roads for this project, so the Access and Haul Road Plan is not required.

#### D.14.18 DEMOLITION PLAN (ENGINEERING AND ASBESTOS SURVEYS)

As work on this plan does not involve demolition of buildings containing asbestos containing material, the Demolition Plan is not required.

#### D.14.19 EMERGENCY RESCUE (TUNNELING)

As work on this project does not involve tunneling operations, this Emergency Rescue plan is not required.

#### D.14.20 UNDERGROUND CONSTRUCTION FIRE PREVENTION AND PROTECTION PLAN

As underground construction is not required on this project, the Underground Construction Fire Prevention and Protection Plan is not required.

#### D.14.21 COMPRESSED AIR PLAN

As there are no plans to use compressed air on this project, a Compressed Air Plan is not required.

#### D.14.22 FORMWORK AND SHORING ERECTION AND REMOVAL PLANS

As this project will not involve formwork and shoring erection and removal, this plan will not be required.

#### D.14.23 JACKING PLAN (LIFT) SLAB PLANS

As there will be no Lift Slab work on this project, this plan will not be required.

#### D.14.24 BLASTING PLAN

As all MEC disposal work on this project site will be handled by the UXO Team, explosive materials will be brought onto the site and used for disposal operations. Explosive operations on this project site are spelled out in the Work Plan in the sections entitled "Demolition, Explosive Storage, and MPPEH Disposal," "MEC Disposal," and "Explosive Management Plan."

#### D.14.25 DIVING PLAN

As there will be no diving on this project, as Diving Plan will not be required.

#### D.14.26 PLAN FOR PREVENTION OF ALCOHOL AND DRUG ABUSE

The Drug Free Workplace Program is included as Attachment 4. All project personnel will be asked to read and abide by this plan, which will be posted at the job site.

#### D.14.27 FALL PROTECTION PLAN

As work will be occurring at ground level and below, a Fall Protection Plan will not be required.

#### D.14.28 STEEL ERECTION PLAN

As no steel erection will be taking place on this project, this plan is not required.

#### D.14.29 NIGHT OPERATIONS LIGHTING PLAN

As there are no plans to operate during hours of darkness, there is no requirement for a Night Operations Lighting Plan.

#### D.14.30 SITE SANITATION PLAN

An adequate supply of potable (drinkable) water shall be provided on site at all times, and will be supplied in accordance with the following provisions:

- Containers used for potable water shall be capable of being tightly closed, equipped with a tap and maintained in a clean and sanitary condition.
- A container used for distribution of drinking water shall be clearly labeled as to its contents and not used for any other purpose.
- Water shall not be dipped from the container and use of a common cup will not be allowed.
- Where single service cups are provided, separate sanitary containers will be provided for the storage of the unused cups and for the disposal of the used cups.
- Water coolers of drinking water will be placed in the support zone.
- Personnel will be instructed to wash their face and hands prior to drinking.
- Outlets and storage containers for non-potable water, such as water for fire fighting or decontamination will be clearly labeled to indicate that the water is not suitable for drinking with the following: "CAUTION – WATER UNSAFE FOR DRINKING, WASHING, OR COOKING." There shall at no time be a cross connection or open potential between a system furnishing

potable water and a system furnishing non-potable water.

Adequate sanitation facilities will be provided at each work site to ensure proper personal hygiene. Site sanitation will be established and maintained in accordance with OSHA 29 CFR 1910.120(n).

- Chemical toilets will be available at the work site. The toilet will be equipped with toilet paper, toilet paper holder, light, washing facilities, locking door, and adequate ventilation.
- Hand and face washing facilities will be set up in the support zone of the work area. These will be utilized by all personnel exiting the EZ prior to eating, drinking, tobacco use or other hand to face activities. Washing facilities will consist of potable running water, soap and drying towels. Portable eyewash will be available in site vehicles.
- Waste Disposal: A trash receptacle will be present in the support zone for the disposal of hand drying materials, any disposable PPE, paper towels used to dry hands and other generated site debris.

#### D.14.31 FIRE PREVENTION PLAN

In order to prevent fire from occurring, every step will be taken to keep the site neat and clean. All equipment and materials not in use will be put away in designated locations. There will be trash cans with lids at the site, which will be emptied on a daily basis to keep trash from accumulating. All flammable liquids will be stored in approved flammable liquid cans in order to prevent spillage and ignition of the material. Bonding and grounding procedures will be in place when transferring flammable liquids from their designated containers and into equipment. Equipment will never be fueled in the back of a pick-up truck containing a bed liner. Personnel handling explosive and/or flammable materials will wear cotton under and outer garments to prevent build-up and transfer of static electricity.

##### D.14.31.1 FIRE PROTECTION

Portable fire extinguishers are rated and classified with NUMERAL and LETTER designations, based on fire tests conducted by the Underwriters Laboratories, Inc. or other nationally recognized testing laboratories. The numeral rating indicates the relative extinguishing effectiveness of extinguishers classified for Class A and B fires only. The Letter classified coincides with the Class of Fire. Extinguishers found to be effective on more than one Class of fire have multiple Letter classifications (Example: B:C).

The rating of hand-portable fire extinguishers is based on the following:

- Class A fire extinguisher is used for ordinary combustible materials
- Class B fire extinguisher is for flammable liquids
- Class C fire extinguisher is for electrical fires
- Class D fire extinguisher is for combustible metal fires

Many fires are small at origin and may be extinguished by the use of proper hand-portable fire extinguishers. It is strongly recommended that the fire department be notified as soon as a fire is discovered. This alarm should not be delayed awaiting result of application of portable fire extinguishers.

Fire extinguishers can represent an important segment of any overall fire protection program. However, their successful functioning depends upon meeting the following conditions:

- The extinguisher is properly located and in working order
- The extinguisher is of proper type for a fire, which may occur
- The fire is discovered while still small enough for the extinguisher to be effective
- The fire is discovered by a person ready, willing, and able to use the extinguisher

Class A fires can be readily extinguished by quenching-cooling with water or a water-mixture agent. Class B fires are more effectively extinguished by an agent that blankets-smothers the fire through exclusion of oxygen surrounding the fire area. Those extinguishers containing bromochlorodifluoromethane, monobromotrifluoromethane, carbon dioxide, or dry chemical are generally best suited for extinguishing Class B fires. For Class C fires, the primary consideration in extinguishing this type of fire is the selection of nonconductive extinguishing agent to prevent dangerous electrical shock and possible death to user.

Water or water-mixture type extinguishing agent must not be used under any circumstances on energized electrical equipment (Class C) fires. When possible, electrical equipment and circuits should be de-energized before attacking a Class C fire. Due to its corrosive nature, dry chemical is not recommended for use on computerized, electronic, or other equipment with extensive circuitry.

A copy of the Fire Prevention standard operating procedure will be posted on-site and implemented.

#### D.14.31.2 FIRE HAZARDS

The site-specific fire hazards include:

- Tall grasses and brush;
- Use of gasoline fueled equipment;
- Inclement weather conditions may include lightning;
- Dry weather conditions; and
- Smoking on site.

#### D.14.31.3 PROPER HANDLING AND STORAGE PROCEDURES FOR HAZARDOUS MATERIALS

Procedures to properly handle and store hazardous material, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard.

##### D.14.31.3.1 Hazardous Materials

None identified for site storage.

##### D.14.31.3.2 Gasoline during vehicle and equipment refuel

- Potential ignition sources:
  - Stored static charge; and
  - Lighters, matches, lit cigarettes.
- Fueling Controls:
  - Do not transport fuel in plastic containers in vehicles with plastic bed liners or on carpeted

- surfaces without securing container in place or placing it in a cardboard box for transport;
- Avoid the practice of leaving the portable fuel container in pickup trucks or cars when refueling. Instead place the container on the ground a safe distance from the vehicle or equipment to dissipated static charge to ground;
- Touch the container with the gas dispenser nozzle before removing the container lid and before placing fuel in the container;
- Keep the nozzle in contact with the container inlet when filling to dissipate the static charge buildup from the flow of gasoline;
- Don't wear synthetic fabrics not only because they can generate static, but also because they melt and stick to the skin;
- Stand upwind of the refueling operation;
- Don't smoke or use cell phone or radio;
- Post signs in the support zone stating "NO SMOKING, MATCHES, OR OPEN FLAME";
- Have 2A:10B:C extinguishers on each vehicle and one 4A:20B:C extinguisher on-site; and
- Report all fires to appropriate personnel.
- Procedures to control accumulation of flammable and combustible waste materials:
  - No flammable waste materials should be generated on this project.
- Employee(s), by position, responsible for the control of fuel source hazards:
  - SUXOS
  - UXOSO

Fire Prevention, use of the fire extinguisher, fueling procedures, fire hazards and who to notify in case of a fire will be reviewed with site personnel before the start of the project and when ever needed.

#### **D.15 CONTRACTOR INFORMATION**

PRI-USA JV is the prime contractor on this project. This APP and attached SHSP is based on PRI-USA JV procedures. There are no subcontractors on this project.

#### **D.16 SITE-SPECIFIC HAZARDS AND CONTROLS**

Site-specific hazards and controls are detailed in the AHAs for each activity of the operation. These can be found in Attachment 2. The specific activities on this site are as follows:

- Vegetation Clearance
- Surface Clearance
- Munitions Debris Collection
- MEC Scrap Inspection and Certification
- MEC Disposal Operations
- Disposal of MEC Scrap
- Quality Control

#### D.16.1 SAFETY HAZARDS

Due to the nature of planned site operations, the potential risk for exposure to safety hazards is high. Anticipated safety hazards, which may be encountered during site activities, and precautions to be followed are listed below in individual AHAs.

##### D.16.1.1 SLIPS, TRIPS, AND FALL HAZARDS

As the sites are outdoors, they have uneven walking-working surfaces. Some areas of the site have heavy vegetation, which will be removed as part of site operations. Site conditions make for the possibility of slips, trips, and fall hazards. Site personnel shall be instructed to make themselves aware of foot placement at all times to avoid slips, trips, and falls. The use of sturdy leather work boots with ankle support and non-slip soles will reduce the risk of slips, trips, and falls.

##### D.16.1.2 CUTS/LACERATION HAZARDS

MEC scrap surfaces and debris can be expected to have sharp and rusted surfaces. Project personnel should expect a high likelihood of cuts/lacerations if proper care is not taken. During all activities involving the handling of MEC, MEC scrap, and site materials, personnel shall wear leather work gloves to prevent injury to hands.

##### D.16.1.3 PINCHED/CRUSHED FINGERS AND TOES

The mishandling of even light materials can cause injuries to site personnel. All site personnel are required to wear leather work boots and gloves while activities are being conducted. Personnel shall utilize proper lifting techniques and when appropriate, shall use additional personnel or material handling equipment for heavy objects.

##### D.16.1.4 HAND TOOL OPERATION

Use of improper or defective tools can contribute significantly to the occurrence of accidents on site. Therefore, the safe work practices listed below shall be observed when using hand tools:

- Hand tools will be inspected for defects prior to each use.
- Defective hand tools will be removed from service and repaired or discarded.
- Tools will be selected and used in the manner for which they were designed.
- Be sure of footing and grip before using any tool.
- Do not use tools that have split handles, mushroom heads, worn jaws, or other defects.
- Gloves will be worn whenever they increase gripping ability or if cut, laceration, or puncture hazards may exist during the use of hand tools.
- Safety glasses with side shields, goggles, or a face shield will be used if tool use presents an eye/face hazard.
- Do not use makeshift tools or other improper tools.
- Use non-sparking tools where there are explosive vapors, gases, or residue.

#### D.16.1.5 MATERIAL LIFTING

Many types of objects are handled in normal day to day operations. Care shall be taken in lifting and handling heavy or bulky items because they are the cause of many joint and back injuries. The following fundamentals address the proper lifting of materials to avoid joint and back injuries:

- The size, shape and weight of the object to be lifted must be considered. Site personnel will not lift more than they can handle comfortably.
- A firm grip on the object is essential; therefore, the hands and object shall be free of oil, grease, and water, which might prevent a firm grip.
- The hands and especially the fingers shall be kept away from any points that cause them to be pinched or crushed, especially when setting the object down.
- The item shall be inspected for metal slivers, jagged edges, burrs, rough or slippery surfaces, and pinch points, and gloves shall be used, if necessary, to protect the hands.
- The feet shall be placed far enough apart for good balance and stability.
- Personnel will ensure that solid footing is available prior to lifting the object.
- When lifting, get as close to the load as possible, bend the legs at the knees, making sure that the back is kept as straight as possible.
- To lift the object, the legs are straightened from their bending position.
- Never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting, with the back kept straight, the legs bent at the knees and the object lowered.
- If the item to be lifted is too large, bulky, or heavy for one person to safely lift, ask a co-worker for assistance. If a piece of material handling equipment is available that can do the job, use the equipment instead of trying to lift it yourself.
- When two or more people are required to handle an object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each person, if possible, shall face the direction in which the object is being carried.

#### D.16.2 MUNITIONS AND EXPLOSIVES OF CONCERN

MEC may be present and located during site activities. UXO qualified personnel will follow the requirements of the SHSP, and the Basic Safety Concepts and Considerations for Ordnance and Explosives Operations, which outline the safety and health precautions to be taken if MEC are encountered and/or destroyed. All non-UXO qualified personnel will follow the safe work practices listed below:

- Non-UXO qualified personnel will receive site-specific MEC recognition training prior to participation in site activities.
- No soil penetrating activities will be allowed without the area first being cleared by UXO qualified personnel.
- Non-UXO qualified personnel will be escorted at all times on site by UXO qualified personnel.
- Non-UXO qualified personnel will not touch or disturb any object which could potentially be MEC related, and will immediately notify the nearest UXO qualified person of the presence of the

object.

- In order to protect other personnel and the general public, an EZ will be set up at a distance of 5,640 feet around the project footprint area or as adjusted by the concurrence of the NAVFAC Atlantic on-site representative and the Title II Contractor based on the specific operations and MEC involved. This represents the fragmentation distance of the largest item known to be found on the site. A safe separation distance of at least 200 feet will be maintained between UXO teams working on the site. However, if MEC with a larger fragmentation distance is encountered on the site, the EZ will be extended to the fragmentation distance of the larger item. PRI-USA JV will have control of the entrance to the project area until the area has been cleared. Should personnel not associated with the project operations need to enter the EZ, it will be coordinated with the SUXOS. All MEC operations will halt for the duration of time the person is within the EZ. Once they have departed the area, MEC operations may resume.
- Hazardous MEC disposal operations will be performed by UXO Teams. MEC that is non-hazardous will be inspected and certified as non-hazardous, and will be collected in a secured location until the conclusion of the project work. After the project work has been completed, the non-hazardous MEC will be sold to a qualified recycler.

#### D.16.3 CHEMICAL HAZARDS

The only anticipated chemical hazards, which would be expected during site activities, are those fuels and oils brought on site for equipment use and maintenance. All site personnel will follow the procedures and precautions outlined in the appropriate MSDS. The MSDS binder will be kept in the UXOSO site office and will be available to all employees on request. Chemical warfare materiel is not expected to be found on this site.

#### D.16.4 PHYSICAL HAZARDS

For the planned site activities to be conducted, the potential for exposure to physical hazards is high for this project. The physical hazards that may be encountered during site operations and precautions to be taken are listed below.

##### D.16.4.1 FLAMMABLE/EXPLOSIVE HAZARDS FROM FUELING EQUIPMENT AND SITE VEHICLES

The chance of fire and/or explosion during vehicle and equipment refueling and maintenance is high when improper procedures are used. All site vehicles will be equipped with a portable fire extinguisher readily available to fight a fire. Equipment will never be refueled on the back of a pick-up truck with a bed liner. Cellular phones will not be used around Flammable Liquids in accordance with Ordnance and Explosives Safety Group Safety Advisory 03-2003. Grounding and bonding procedures will be used during all fueling operations. No smoking will be permitted in the vicinity of fueling operations, and flammable and combustible materials will be removed from the vicinity of fueling operations.

##### D.16.4.2 NOISE HAZARDS

Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table D-8, as measured on the A scale of a standard sound level meter at slow response. When employees are subjected to sound exceeding those listed in Table D-8, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound to a safe level, personal protective equipment shall be provided and used to reduce sound exceeding protective levels. If the variations in noise level involve maximal intervals of one second or less, it is to be considered continuous.



**Table D-8: Permissible Noise Exposures**

<b>PERMISSIBLE NOISE EXPOSURES (1)</b>	
<b>Duration per Day, (Hours)</b>	<b>Sound level dBA (Slow Response)</b>
8.00	90
6.00	92
4.00	95
3.00	97
2.00	100
1.50	102
1.00	105
0.50	110
0.25	115
Footnote (1). When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C1./T1. + C2./T2. + \dots + Cn./Tn.$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. C(n) indicates the total time of exposure at a specified noise level, and T(n) indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level	

PRI-USA JV shall make hearing protection available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater. Hearing protection shall be replaced as necessary. Hearing protection will be required for all personnel working in and around any operations likely to produce high noise levels, such as during the use of chain saws and weed-eaters used for vegetation clearance operations.

#### D.16.4.3 HEAT STRESS

Heat stress is one of the most common (and potentially serious) illnesses that affect hazardous waste site workers. When site personnel are engaged in operations involving hot environments and/or the use of semi- or impermeable clothing, a number of physiological responses can occur which may seriously affect the health and safety of the workers. These affects can be eliminated or controlled through the use of a comprehensive heat stress prevention and monitoring program.

##### D.16.4.3.1 Common Causes of Heat Stress

The most common cause of heat stress during site activities is the affect that PPE has on the body's natural cooling mechanism. Individuals will vary in their susceptibility and degree of response to the stress induced by increased body heat. Heat stress can result in health effects ranging from transient heat fatigue to serious illness or death. Heat stress is caused by a number of interacting factors including environmental condition, clothing, workload, and the individual characteristics of the worker. Because heat stress is probably one of the most common (and potentially serious) illnesses at hazardous waste sites, regular monitoring and other preventive precautions are vital.

Factors which may predispose a worker to heat stress include:

- Lack of physical fitness
- Lack of acclimatization to hot environments
- Degree of hydration
- Level of obesity

- Current health status (i.e., having an infection, chronic disease, diarrhea, etc.)
- Alcohol or drug use
- The worker's age and sex
- Sunburn

Reduced work tolerance and the increased risk of excessive heat stress is directly influenced by the amount and type of PPE worn. PPE adds weight and bulk, severely reduces the body's access to normal heat exchange mechanisms (evaporation, convection, and radiation), and increases energy expenditure. Therefore, when selecting PPE, each item's benefit should be carefully evaluated in relation to its potential for increasing the risk of heat stress. Once PPE is selected, the safe duration of work/rest periods should be determined based on the:

- Anticipated work rate
- Ambient temperature and other environmental factors
- Type of protective ensemble
- Individual worker characteristics and fitness

Prior to initiating site activities each day, and periodically throughout the day, the UXOSO will inspect the site personnel for evidence of the previously mentioned factors to determine those personnel who are at increased risk for heat stress related disorders. Evidence of extreme dehydration, illness or drug or alcohol use may require the UXOSO to restrict the worker's activities until such time as the worker is fit for duty. Personnel identified as being at high risk for heat stress who are allowed to participate in site operations will be monitored frequently by the UXOSO throughout the day.

#### D.16.4.3.2 Heat Stress Disorders

This Section outlines the major heat related illnesses that may result from exposure to high heat environments and/or the use of semi- or impermeable clothing. For the purpose of this Program, reference to "liquids" will indicate the use of water or an electrolyte replacement solution, and not tea or coffee (unless it is decaffeinated) or carbonated soft drinks.

##### *D.16.4.3.2.1 Heat Rash*

Heat rash is caused by continuous exposure to heat and humid air and is aggravated by wet, chafing clothes. This condition can decrease a worker's ability to tolerate hot environments.

**Symptoms:** Mild red rash, especially in areas of the body that sweat heavily.

**Treatment:** Decrease amount of time in protective gear and provide powder such as corn starch or baby powder to help absorb moisture and decrease chafing. Maintain good personal hygiene standards and change into dry clothes if needed.

##### *D.16.4.3.2.2 Heat Cramps*

Heat cramps are caused by a profuse rate of perspiration that is not balanced by adequate fluid and electrolyte intake. The occurrence of heat related cramps are often an indication that excessive water and electrolyte loss has occurred, which can further develop into heat exhaustion or heat stroke.

**Symptoms:** Acute, painful spasms of voluntary muscles such as the back, abdomen and extremities.

**Treatment:** Remove victim to a cool area and loosen restrictive clothing. Stretch and massage affected muscles to increase blood flow to the area. Have patient drink one to two cups of liquids immediately, and every twenty minutes thereafter. Consult with physician if condition does not improve. If available, an electrolyte replacement solution should be taken along with liquids.

#### *D.16.4.3.2.3 Heat Exhaustion*

Heat exhaustion is a state of very definite weakness or exhaustion caused by increased stress on various organs to meet increased demands to cool the body due to excessive loss of fluids from the body. This condition leads to inadequate blood supply and cardiac insufficiency. Heat exhaustion is less dangerous than heat stroke, but nonetheless must be treated. If allowed to go untreated, heat exhaustion can quickly develop into heat stroke.

**Symptoms:** Pale or flushed, clammy, moist skin, profuse perspiration, and extreme weakness. Body temperature is basically normal or slightly elevated, the pulse is weak and rapid, and breathing is shallow. The individual may have a headache, be dizzy or nauseated.

**Treatment:** Remove the individual to a cool, air-conditioned place, loosen clothing, elevate feet and allow individual to rest. Consult physician, especially in severe cases. Have patient drink one to two cups of liquids immediately, and every twenty minutes thereafter. Total liquid consumption should be about one to two gallons per day. If the signs and symptoms of heat exhaustion do not subside, or become more severe, immediate medical attention will be required.

#### *D.16.4.3.2.4 Heat Stroke*

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of the heat regulating mechanisms of the body. The failure of the individual's temperature control system causes the perspiration system to stop working correctly. When this occurs, the body core temperature rises very rapidly to a point (105+ degrees Fahrenheit [°F]) where brain damage and death will result if the person is not cooled quickly.

**Symptoms:** The victim's skin is hot and may or may not be red and dry (due to the fact that the individual may still be wet from having sweat while wearing protective clothing earlier); nausea; dizziness; confusion; extremely high body temperatures; rapid respiratory and pulse rate; delirium; convulsions; unconsciousness or coma.

**Treatment:** Cool the victim immediately. If the body temperature is not brought down quickly, permanent brain damage or death may result. The victim should be moved to a shady area; lie down and keep the head elevated. Cool the victim by either sponging or immersing the victim in cool water to reduce the core temperature to a safe level (<102°F). If conscious, give the victim cool liquids to drink. Observe the victim and obtain immediate medical help. Do not give the victim caffeinated or alcoholic beverages. Heat stroke is considered a medical emergency.

#### *D.16.4.4 PREVENTIVE MEASURES*

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing heat stress is particularly important because once someone suffers from heat exhaustion, that person may become predisposed to additional heat injuries. In order to avoid heat related illnesses, proper preventive measures will be implemented whenever environmental conditions dictate the need. These preventive measures represent the minimal steps to be taken and will include the following

procedures:

The UXOSO will examine each site worker prior to start of daily operations to determine the individuals susceptible to heat induced stress. Workers exhibiting factors that make them susceptible to heat stress will be closely monitored by the UXOSO.

Site workers will be trained to recognize and treat heat-related illnesses. This training will include the signs, symptoms and treatment of heat stress disorders as outlined in this APP/SHSP.

In order to maintain workers' body fluids at normal levels, workers will be encouraged to drink, as a minimum, approximately sixteen ounces of liquids prior to start of work in the morning, after lunch and prior to leaving the site at the conclusion of the day's activities. Disposable 4 to 12 ounce cups and liquids will be provided on site. Acceptable liquids will include water and an electrolyte replacement solution. It is recommended that the water to balanced electrolyte liquids be taken at a 2:1 ration with the intake of water being twice the intake of the balanced electrolyte liquids. Liquids containing caffeine are to be avoided.

When ambient conditions and site workload requirements dictate, as determined by the UXOSO, workers will be required to drink a minimum of 16 to 32 ounces of liquids during each rest cycle. The normal thirst mechanism is not sensitive enough to ensure that enough water will be ingested to replace lost sweat. When heavy sweating occurs, workers should be encouraged to drink even though they may not be thirsty. The following strategies may useful in encouraging fluid intake:

- Maintain water temperature at 50°F to 60°F (10°C to 15.6°C).
- Provide small disposable cups that hold about 4 ounces (0.1 liter).
- Have workers drink 16 ounces (0.5 liters) of fluids (preferably water or dilute drinks) before beginning work.
- Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- A shelter or shaded area will be provided where workers may be protected from direct sunlight during rest periods.
- Monitoring of ambient or physiological heat stress indices will be conducted to allow prevention and/or early detection of heat induced stress. Monitoring will be conducted in accordance with applicable paragraphs of this Program.

Site workers will be given time to acclimatize to site work conditions, temperature, protective clothing, and workload. Acclimatization usually takes about a week to 10 days of continued work in hot environments, and allows the worker's body to become adjusted to this level and type of work. This process involves a gradual increase in the workload over the required period, the length of which depends upon the nature of the work performed, the ambient temperatures, the level of PPE required for the job, and the individual's susceptibility to heat stress.

- Work schedules will be adjusted as follows:
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Rotate personnel: alternate job functions to minimize overstress or overexertion at one task.

- Add additional personnel to work teams.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.

#### D.16.4.5 SUPPLEMENTAL PREVENTIVE MEASURES

When possible and/or feasible, the following measures may also be implemented to aid in prevention or reduction of the affects of heat induced stress:

Designated rest areas should be air-conditioned and the temperature maintained between 72°F and 76°F.

Cooling devices may be provided to aid in body heat exchange. Cooling devices may include cooling jackets, vests or suits and field showers or hose-down areas. Depending on the severity of the heat exposure some form of artificial cooling may be required to ensure protection of the workers.

Workers will be encouraged to achieve and maintain an optimum level of physical fitness. Increased physical fitness will allow workers to better tolerate and respond to hot environments and heavy workloads. In comparison to an unfit person, a fit person will have: less physiological strain; a lower heart rate and body temperature; and a more efficient sweating mechanism.

#### D.16.4.6 HEAT STRESS MONITORING

Because the incidence of heat stress depends on a variety of factors, all workers, even those not wearing protective equipment, should be monitored. Initially, the frequency of physiological monitoring depends on the air temperature adjusted for solar radiation and the level of physical work (see Table D-9). The length of the work cycle will be governed by the frequency of the required physiological monitoring.

For workers wearing permeable clothing (e.g., standard cotton or synthetic work clothes), follow recommendations for monitoring requirements and suggested work/rest schedules in the current American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Values for Heat Stress. If the actual clothing worn differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, change the monitoring requirements and work/rest schedules accordingly.

When site personnel are engaged in site activities involving the use of semi-permeable or impermeable clothing in ambient temperatures greater than 70°F, physiological monitoring will be conducted. The goal of all heat stress monitoring is to ensure that the worker's body temperature does not exceed 100.4°F. The physiological monitoring methods listed below are to be implemented based upon the severity of the heat and workload. As a minimum, the UXOSO will monitor the Wet Bulb, Dry Globe Temperature (WBGT). If additional monitoring is indicated, particularly during the acclimatization process, the UXOSO will use the worker's heart rate as an indication of potential heat stress. The frequency of physiological monitoring will be determined using the information presented in Table D-9.

For monitoring the body's recuperative ability toward excess heat, both of the following techniques should be used as a screening mechanism unless the UXOSO modifies the procedures and documents the log. Monitoring of personnel wearing impervious clothing should commence when the ambient temperature is 70°F or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates to baseline (pre-work) levels are indicated.

##### D.16.4.6.1 Wet Bulb, Dry Globe Temperature Monitoring

For site conditions where personnel are working in Level D PPE, and the ambient temperature is greater than 75°F, the UXOSO will conduct WBGT monitoring to assist in controlling the potential for site workers experiencing heat related adverse health affects. The UXOSO will use a real-time direct reading WBGT monitor, and after estimating the work load, use the values expressed in Table D-10, to determine the work/rest schedule to be implemented. The values outlined in this table are designed such that nearly all acclimatized, fully clothed workers with adequate salt and water intake will be able to function without the body temperature exceeding 100.4°F. If conditions and/or work loads warrant, the UXOSO may also implement the heart rate monitoring, particularly during the acclimatization process.

Acclimatization is the adaptive process that results in a decrease of the physiological response produced by the application of a constant environmental stress. On initial exposure to a hot environment, there is an impaired ability to work and evidence of physiological strain. If the exposure is repeated on several successive days, there is a gradual return of the ability to work and a decrease in physiological strain. Within 4 to 7 days following initiation of the acclimatization process, a dramatic improvement in the ability to perform work is noticed: subjective discomfort practically disappears; body temperature and heart rate are lower; there is a more stable blood pressure; and the sweat is more profuse and dilute.

Alcohol should not be consumed in a hot environment because the loss of body fluids increases the risk of heat stress.

#### D.16.4.6.2 HEART RATE MONITORING

The worker's baseline heart rate should be recorded prior to initiation of site activities by measuring the radial pulse rate for thirty seconds. After each work cycle, the heart rate should be measured by taking the pulse rate (PR) for 30 seconds as early as possible into the resting period. Taking the radial (wrist) pulse rate is the preferred method, however the carotid (neck) pulse rate may be taken if a worker has difficulty finding the radial pulse. The PR at the beginning of the rest period should not exceed one hundred and ten (110) beats per minute (bpm). If the PR is higher than 110 bpm, the next work period should be shortened by thirty-three percent, while the length of the rest period stays the same. If the PR exceeds 110 bpm at the beginning of the next rest period, the work cycle should be further shortened by thirty-three percent. This procedure will be continued until the worker's PR at the beginning of the rest cycle is maintained below 110 bpm.

#### D.16.4.6.3 Heat Stress Documentation

The UXOSO will be responsible for recording all heat stress related information. This will include training sessions, monitoring data. Training sessions will be documented using the Documentation of Training form. Pulse rate monitoring data will be recorded on a Heat Stress Monitoring Log.

**Table D-9: Suggested Frequency of Physiological Monitoring For Fit and Acclimatized Workers**

ADJUSTED TEMPERATURE <sup>b</sup>	NORMAL WORK ENSEMBLE <sup>c</sup>	IMPERMEABLE ENSEMBLE
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°-90°F (30.8°-32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-28.1°C)	After each 90 minutes of work	After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 minutes of work	After each 120 minutes of work

<sup>a</sup> For work levels of 250 kilocalories/hour.

<sup>b</sup> Calculate the adjusted air temperature (at adj) by using this equation:  $at\ adj\ ^\circ F = ta\ ^\circ F + (13 \times \% \text{ sunshine})$ . Measure air temperature (at) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

<sup>c</sup> A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

**Table D-10: Permissible WBGT Heat Exposure Threshold Limit Values**

Work - Rest Regimen	WORK LOAD		
	Light*	Moderate	Heavy
Continuous work	86 (30.0)	80 (26.7)	77 (25.0)
75% Work - 25% Rest, each hour	87 (30.6)	82 (28.0)	78 (25.9)
50% Work - 50% Rest, each hour	89 (31.4)	85 (29.4)	82 (27.9)
25% Work - 75% Rest, each hour	90 (32.2)	88 (31.1)	86 (30.0)

\* Consult the ACGIH TLV booklet for definitions of Light, Moderate and Heavy work loads.

Values are given in °F and (°C) WBGT, and are intended for workers wearing single layer summer type clothing. Use of semi or totally impermeable clothing require monitoring in accordance with the Heat

Stress Prevention Program. As workload increases, the heat stress impact on an unacclimatized worker is exacerbated. For unacclimatized workers performing a moderate level of work, the permissible heat exposure TLV should be reduced by approximately 2.5°C.

#### D.16.5 IONIZING RADIATION HAZARDS

Ionizing radiation is not expected to be an issue on this project site for PRI-USA JV site personnel.

#### D.16.6 BIOLOGICAL HAZARDS

Biological hazards, which may be found on-site, include insects, arachnids, such as: spiders, scorpions, and plants. Non-poisonous snakes and other wildlife are also common hazards in this area. Employee awareness and the safe work practices outlined in the following paragraphs should reduce the risk associated with these hazards to acceptable levels.

##### D.16.6.1 BITING AND STINGING INSECTS

Many types of biting and stinging insects such as mosquitoes, sand flies, centipedes, fire ants, bees, wasps, mites, fleas and spiders may be encountered on-site. With these things in mind and with the high probability of contact with stinging insects, all site personnel will comply with the following safe work practices;

- If a worker knows that he is hypersensitive to bee, wasp or hornet stings, he must inform the SUXOS or UXOSO (as applicable) of this condition prior to participation in site activities;
- All site personnel will be watchful for the presence of stinging insects and their nests, and will advise the SUXOS or UXOSO (as applicable) a stinging insect nest or presence of a swarm of bees is located or suspected in the area;
- Any nests located on-site will be flagged and site personnel will be notified of its presence;
- If stung, site personnel will immediately report the SUXOS or UXOSO (as applicable) to obtain treatment and to allow the SUXOS or UXOSO (as applicable) to observe them for signs of allergic reaction; and
- Site personnel with a known hypersensitivity to stinging insects will keep required emergency medication on or near their person at all times, and will inform their supervisor of the medication and how to administer it in an emergency.

The UXOSO will encourage the use of insect repellents.

##### D.16.6.1.1 Mosquitoes

The Center for Disease Control (CDC) has noted the increase of West Nile Virus (WNV) that is transmitted by bites from an infected mosquito. Mosquitoes live in nearly all environments, including urban, wooded, grassy, brushy, arid, or other areas that contain standing pools of water (seeps, drainage, watering holes, etc.).

WNV disease has been documented in at least 42 states (and Puerto Rico). WNV was first detected in the western hemisphere in 1999. The virus is transmitted by certain types of mosquitoes to birds and some mammals, including humans. WNV is not spread from person to person. In areas where the virus exists usually less than one percent of the mosquito population is likely to be infected with the virus.



Most people who become infected with the WNV do not show symptoms or may show only mild ones. The symptoms of WNV include: fever, headache, body aches, occasional skin rash, and swollen lymph nodes. At its most serious, it can cause encephalitis or meningitis. Less than one percent of people who are bitten by an infected mosquito will develop severe illness. These symptoms include a rapid onset of: severe headache, high fever, stiff neck, confusion, loss of consciousness (coma), or muscle weakness, and may be fatal.

In addition to WNV, mosquitoes may carry viral infection known as Dengue fever. Dengue fever victims suffer high fever, headaches, muscle and joint pain and a rash that appears three-to-four days after the onset of the fever. There is no treatment for the disease. A severe case can develop into dengue hemorrhagic fever which has a fatality rate of 5 percent.

Treatment for WNV includes supportive measures such as rest, observation, intravenous fluids, and respiratory support as needed.

If you believe you are showing any of the symptoms noted above, contact the UXOSO, who will authorize you to visit a physician for an examination and possible treatment.

#### *D.16.6.1.1.1 Protective Measures*

Standard field gear (work boots, hats, socks, trousers, and work shirts provide good protection against mosquito bites, exposed skin is particularly susceptible to bites. However, even when wearing field gear, the following precautions shall be taken when working in areas that might be infested with mosquitoes:

- Spray outer clothing **BUT NOT YOUR SKIN**, with an insect repellant that contains permethrin or permamone;
- When working in infested areas apply an insect repellant containing 33 percent Deet to exposed skin and avoid standing water areas as much as possible; and
- Also look for the symptoms of the onset of WNV, which occur within 3 to 15 days after being bitten by an infected mosquito.

#### *D.16.6.1.2 Bees, Hornets and Wasps*

Contact with stinging insects like bees, hornets and wasps may result in site personnel experiencing adverse health affects that range from mild discomfort to life threatening. Therefore, stinging insects present a serious hazard to site personnel, and extreme caution must be exercised whenever site and weather conditions increase the risk of encountering stinging insects. Some of the factors that are related to stinging insects that increase the degree of risk associated with accidental contact are as follows:

- The nests for these insects are frequently found in remote wooded, grassy areas where many waste sites are located;
- The nests can be situated in trees, rocks, and bushes or in the ground, and are usually difficult to see;
- Accidental contact with these insects is highly probable, especially during warm weather conditions when the insects are most active;
- If a site worker accidentally disturbs a nest, the worker may be inflicted with multiple stings, causing extreme pain and swelling which can leave the worker incapacitated and in need of medical attention; and
- Some people are hypersensitive to the toxins injected by a sting, and when stung, experience a

violent and immediate allergic reaction resulting in a life-threatening condition known as anaphylactic shock. Anaphylactic shock manifests itself very rapidly and is characterized by extreme swelling of the body, eyes, face, mouth and respiratory passages.

The hypersensitivity needed to cause anaphylactic shock, can in some people, accumulate over time and exposure; therefore, even if someone has been stung previously, and has not experienced an allergic reaction, there is no guarantee that they will not have an allergic reaction upon receipt of another sting.

#### D.16.6.1.3 Mites (Chiggers)

Chiggers are small mites that are usually a yellowish to bright red color. Chiggers may live year-round but are especially active during spring and summer. The larval chigger is the active stage that bites animals and humans, attaching themselves tightly. After secreting digestive enzymes that break down the skin cells, the mite feeds on the liquefied cells. The rash and intense itching associated with chiggers is an allergic reaction to the mite's salivary secretions. Preventive measures used against mosquitoes are effective against chiggers. Treatments to ease itching include ointments such as calamine lotion, hydrocortisone, and benzocaine.

#### D.16.6.1.4 Ticks

The CDC has noted the increase of Lyme Disease and Rocky Mountain Spotted Fever (RMSF) which are caused by bites from ticks infected with spirochetes (Lyme Disease) or rickettsia (RMSF), that live in and near wooded areas, grass, and brush. Ticks are small, ranging from the size of a comma up to about one quarter inch. They are sometimes difficult to see. When embedded in the skin, they may look like a freckle. The tick season extends from spring through summer.

The first symptoms of either disease are flu like chills, fever, headache, dizziness, fatigue, stiff neck, and bone pain. If immediately treated by a physician, most individuals recover fully in a short period of time. If not treated, more serious symptoms can occur. If you believe you have been bitten by a tick, or if any of the signs and symptoms noted above appears, contact the UXOSO, who will authorize you to visit a physician for an examination and possible treatment.

#### D.16.6.2 SPIDERS

A large variety of spiders may be encountered during site activities. While most spider bites merely cause localized pain, swelling, reddening and in some cases, tissue damage, there are a few spiders that, due to the severity of the physiological affects caused by their venom, are dangerous. These species include the black widow and the brown or violin spiders.

The black widow is a coal-black bulbous spider  $\frac{1}{2}$  to  $\frac{3}{4}$  inches in length, with a bright red hourglass on the under side of the abdomen. The black widow is usually found in dark moist locations, especially under rocks, rotting logs and may even be found in outdoor toilets where they inhabit the underside of the seat. Victims of a black widow bite may exhibit the following signs or symptoms:

- Sensation of pinprick or minor burning at the time of the bite.
- Appearance of small punctures (but sometimes none are visible).

After 15 to 60 minutes, intense pain is felt at the site of the bite which spreads quickly, and is followed by profuse sweating, rigid abdominal muscles, muscle spasms, breathing difficulty, slurred speech, poor coordination, dilated pupils and generalized swelling of face and extremities.

The brown or violin spider is brownish to tan in color, rather flat, ½ to 5/8 inches long with a dark brown "violin" shape on the top. The brown recluse, the desert violin and the Arizona violin are likely to cause problems. These spiders may be found in a variety of locations including trees, rocks or in dark locations. Victims of a brown or violin spider bite may exhibit the following signs or symptoms:

- Blistering at the site of the bite, followed by a local burning at the site 30 to 60 minutes after the bite.
- Formation of a large, red, swollen, pustulating lesion with a bull's-eye appearance.
- Systemic affects may include a generalized rash, joint pain, chills, fever, nausea and vomiting.
- Pain may become severe after 8 hours, with the onset of tissue necrosis.

There is no effective first aid treatment for either of these bites. Except for very young, very old or weak victims, these spider bites are not considered to be life threatening; however, medical treatment must be sought to reduce the extent of damage caused by the injected toxins.

If either of these spiders are suspected or known to be on site, the UXOSO will brief site personnel as to the identification and avoidance of the spiders. As with stinging insects, site personnel shall report to the UXOSO if they locate either of these spiders on site or notice any type of bite while involved in site activities.

If the spider can be retrieved, it should be taken with the patient to medical treatment. If venomous spiders are suspected or known to be on-site, the SUXOS or UXOSO (as applicable) will brief the site personnel as to their identification and avoidance. As with stinging insects, site personnel should report to the SUXOS or UXOSO (as applicable) if they locate these spiders on-site or notice any type of bite while involved in site activities.

#### D.16.6.3 SNAKES

There are no poisonous snakes indigenous to Vieques, Puerto Rico, only non-poisonous snakes such as the very rare Puerto Rican Boa (boa constrictor) are found on the island.

#### D.16.6.4 PLANTS CAUSING SKIN REACTIONS

A number and variety of hazardous plants may be encountered. The ailments associated with these plants range from mild hay fever to contact dermatitis to carcinogenic affects. The plants that present the greatest degree of risk to site personnel (i.e. potential for contact vs. affect produced) are those that produce skin reactions and skin and tissue injury. The hazardous plants of greatest concern are a variety of poison oak, poison ivy, or sumac found in the project area. Contact with the leaves, stems, or roots of these plants may produce redness, blisters, swelling, and intense burning and itching due to transfer of oils or sap. The victim also may develop an infection should the surface of the skin be broken. The most distinctive features of hazardous plants are readily visible. These plants may grow in all areas around the project site. Improper treatment of an injury can cause secondary infections to occur. Preventive measures that can prove effective for most site personnel are:

- Avoid contact with any hazardous plants on site.
- Remove gloves prior to touching face, neck, or other exposed areas of the body.
- Wash hands, face or other exposed areas at the beginning of each break period and at the end of each workday.

- Keeping the skin covered as much as possible (i.e., long pants and long sleeved shirts) in areas where these plants are known to exist will limit some of the potential exposure.

#### D.16.6.5 PLANTS CAUSING SKIN AND TISSUE INJURY

Contact with sharp leaves, nettles, and thorns are of special concern to site personnel. This concern stems from the fact that punctures, cuts and even minor scrapes caused by accidental contact may result in non-infectious skin lesions, and the introduction of fungi or bacteria through the skin or eye. This is especially important in light of the fact that the warm moist environment created inside protective clothing is ideal for the propagation of fungal and bacterial infection. Personnel receiving any of the injuries listed above, even minor scrapes will report it immediately to the UXOSO for initial and continued observation and care of the injury. Keeping the skin covered as much as possible (i.e., long pants and long sleeved shirts) in areas where these plants are known to exist will limit much of the potential exposure.

#### D.16.6.6 ANIMALS

There is a potential for feral dogs and cats to run free throughout the project site. These animals may become aggressive if threaten or cornered or for no apparent reason.

If you are approached by an animal that may attack you:

- Never scream and run;
- Remain motionless, hands at your sides, and avoid eye contact with the animal;
- Once the animal loses interest in you, slowly back away until he is out of site;
- If the animal does attack, “feed” it your jacket, magnetometer, or anything that you can put between yourself and the animal; and
- If you fall or are knocked to the ground, curl into a ball with your hands over your ears and remain motionless. Try not to scream or roll around.

**Treatment:** If bitten immediately wash the wound with soap and water and can get medical help. Notify the local animal care and control agency. Give them as much information as possible as size, color and direction in which the dog left the area.

**Prevention Measures:** Never approach a strange animal. Do not pet a dog or cat without letting him see and sniff you first. Never turn your back to an animal and run away. A dog’s first instinct will be to chase and catch you. Always assume that a feral animal may see you as an intruder or a threat.

### D.17 LOGS, REPORTS, AND RECORD KEEPING

PRI-USA JV will perform and document safety inspections, as well as maintain a site visitor log. Personnel records will be kept on site, which document medical surveillance and appropriate training certifications. In addition, accident reports and site monitoring reports will also be maintained on site. All site logs, documents, and records will be included in the final report.

#### D.17.1 SAFETY INSPECTION LOGS

The UXOSO will perform and document daily and weekly safety inspections of all site operations on a scheduled and non-scheduled basis. The UXOSO will conduct non-scheduled safety and health inspections as deemed appropriate, based upon the ongoing site activities. Scheduled safety and health

inspections will be conducted as outlined in Table D-11. When discrepancies are observed, follow-up will be documented in the UXOSO log until the corrective actions required have been completed.

The following information will be maintained in the Safety Log:

- Date and location;
- Tailgate safety briefing (time conducted, material discussed, etc.);
- Weather conditions;
- Significant site events relating to safety;
- Accidents;
- Stop work events related to safety;
- Inspections performed;
- Safety audits; and
- Signature of the UXOSO at the end of each day.

**Table D-11: Inspection Type and Frequency**

AREA	FREQUENCY
Sanitation	Daily
Medical and First Aid	Daily
Temporary Facilities	Weekly
Personal Protective and Safety Equipment	Daily
Hazardous Substances, Agents, and Environments	Weekly
Lighting	Monthly
Accident Prevention Signs, Tags, Labels, and Signals and Piping System Identification	Monthly
Fire Prevention and Protection	Weekly
Hand and Power Tools	Daily, if applicable
Material Handling, Storage and Disposal	Weekly
Machinery and Mechanized Equipment	Daily, if applicable
Motor Vehicles	Daily
Safe Access and Fall Protection	Weekly, if applicable
HTRW	Daily, if applicable

#### D.17.2 VISITOR LOG

The Visitor's Log will be maintained by the UXOSO and will document the visitor's name, company name, date, time, and reason for visit. There will also be documentation that the visitor was given a safety briefing prior to being permitted to enter the EZ of the site. Visitors will be escorted by UXO personnel at all times within the EZ. MEC operations will cease while visitors are within the EZ.

#### D.17.3 RECORD KEEPING

Each person on the site will have an individual file folder, which contains a copy of the following:

- 40-hr HAZWOPER Certificate;
- Current 8-hr HAZWOPER Annual Refresher Certificate;
- 8-hr HAZWOPER Supervisor Certificate, if applicable;
- EOD Training Certificate; and
- Any other applicable training certificates.

Personnel folders will be maintained by the UXOSO on site for the duration of site activities. A Training/Tailgate Safety Record will be completed for all on-site daily training. The UXOSO will maintain the file, which will be made available for the client as requested.

#### D.17.4 MEDICAL SURVEILLANCE RECORDS AND CERTIFICATIONS

A copy of the Physician Statement from a licensed physician who is certified in Occupational Medicine by the American Board of Preventive Medicine, regarding the current annual HAZWOPER physical examination, will be maintained in the personnel folder with the HAZWOPER certificates. The Physician Statements will remain in the individual's file on the project site for the duration of site operations. The files will then be transferred to the PRI-USA JV Corporate Office at the end of site operations.

#### D.17.5 ACCIDENT REPORTING RECORDS

If an injury or illness occurs on-site, the UXO Team Leader is responsible for completing an Accident Report form. The UXO Team Leader will coordinate preparation of the respective forms to ensure accuracy and consistency. All accidents/incidents must be investigated by the UXO Team Leader or an assigned individual. The purpose of the investigation is to determine the causal factors that lead to the accident/incident and to establish corrective actions to prevent a recurrence. A completed Accident Report Follow-Up Form must be forwarded to the CHSM within 5 days after the incident. Copies will be maintained on site for the duration of site activities. A permanent copy will be maintained in the PRI-USA JV Corporate Office.

OSHA recordable injuries and/or illnesses will be entered on the OSHA Form 300 by the UXOSO. This form will be maintained onsite for the duration of the project then returned to the corporate office for inclusion in reports and required filing.

#### D.17.6 SITE MONITORING RESULTS

All site monitoring results will be documented. This will be kept in a file at the project site for reference, and will become a part of the permanent site record at the conclusion of site activities. At this site, heat exposure monitoring is the only monitoring anticipated which is dependent upon the site temperature and humidity.

#### D.17.7 AFTER ACTION REPORT

PRI-USA JV will develop, retain and submit as part of the after action report, all visitor registration logs, training logs, and daily safety inspection logs as part of the daily QC reports.

## **APPENDIX D - ATTACHMENT 1**

### **D-1.0 OSHA FORMS**

This attachment contains USAE OSHA forms for the Accident Prevention Plan.

List of OSHA Forms:

- **OSHA's Form 300** – Log of Work-Related Injuries and Illnesses
- **OSHA's Form 300A** – Summary of Work-Related and Illnesses

## Log of Work-Related Injuries and Illnesses

Year 2005



**U.S. Department of Labor**  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Establishment name	USA Environmental, Inc.		
City	Tampa	State	Florida

[illegible]

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.



OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0	0	1	1
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
0	0
(K)	(L)

Injury and Illness Types

Total number of... (M)			
(1) Injury	2	(4) Poisoning	0
(2) Skin Disorder	0	(5) Hearing Loss	0
(3) Respiratory Condition	0	(6) All Other Illnesses	0

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor OSHA Office of Statistics Room N-3644 200 Constitution Ave. NW Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name USA Environmental, Inc.

Street 5802 Benjamin Center Drive, Suite 101

City Tampa State Florida Zip 33634

Industry description (e.g., Manufacture of motor truck trailers)  
Environmental Management Services

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)  
8 7 4 4

OR North American Industrial Classification (NAICS), if known (e.g., 336212)  
5 6 2 9 1 0

Employment information

Annual average number of employees 132

Total hours worked by all employees last year 287,664

Sign here



Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

John Q. Adams  
Company executive

(813) 884-5722  
Phone

Vice President  
Title

1-Feb-06  
Date

## **APPENDIX D - ATTACHMENT 2**

### **D-2.0 ACTIVITY HAZARD ANALYSIS**

This attachment contains the following Activity Hazard Analysis forms for the Munitions Removal Action at the LIA:

- Surveying-In the Site Boundaries
- Vegetation Clearance
- Surface Clearance
- Munitions Debris Collection
- MEC Scrap Inspection and Certification
- MEC Disposal Operations
- Disposal of MEC Scrap
- Quality Control

## Activity Hazard Analysis (AHA)

### Surveying-In the Site Boundaries

<b>Activity: Surveying-In the Site Boundaries</b>	<b>Date: August 10, 2006</b>
	<b>Project: Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico</b>
<b>Description of the work: Locate Boundaries and Establish Site Grid System for Conducting Removal Action.</b>	<b>Analyzed By: Robert Crownover, Corporate Safety and Health Mgr.</b>
	<b>Prepared By: Cheryl M. Riordan, CSP</b>
	<b>Review for latest use:</b> Each time before the job is performed.

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>• UXO personnel will accompany survey team to site.</li> <li>• UXO personnel will lead team into area and will clear the path of entry into the site. If MEC is encountered, path will be routed around it.</li> <li>• If live MEC is encountered, the area will be marked and the disposal operation will be performed by a UXO team.</li> <li>• If inert MEC is encountered, it will be marked for later pick-up and inspection.</li> <li>• Where intrusive operations, such as driving stakes, are required UXO personnel, using geophysical equipment, will determine if there are potential MEC beneath the ground surface.</li> <li>• If potential MEC is located below the ground surface, the area for the intrusive operations will be moved.</li> </ul>	<ul style="list-style-type: none"> <li>• MEC hazards</li> <li>• Uneven working surfaces – slip, trip, fall hazards.</li> <li>• Muscle strain carrying instruments</li> <li>• Heat Stress</li> <li>• Biological hazards - bees, wasps, ticks, mites, mosquitoes, spiders poisonous plants, and feral dogs and cats.</li> <li>• Sunburn</li> </ul>	<ul style="list-style-type: none"> <li>• On-site MEC training.</li> <li>• Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>• Follow appropriate lifting/ carrying procedures.</li> <li>• Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>• Training in biological hazards avoidance.</li> <li>• Wear long sleeved shirts and long pants.</li> <li>• Insect repellent.</li> <li>• Wear cap for head protection and use sunscreen.</li> </ul>

## Activity Hazard Analysis (AHA)

### Surveying-In the Site Boundaries

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"> <li>• Appropriate geophysical equipment.</li> <li>• Footwear with ankle support and non-slip soles (no steel toes around magnetometers).</li> <li>• Communications equipment.</li> <li>• Appropriate clothing and PPE to include leather gloves, safety glasses or goggles, cotton work clothing.</li> <li>• First aid kit.</li> <li>• Fire extinguishers</li> <li>• WBGT Monitor.</li> </ul>	<p><b>Team Leader/UXOSO</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"> <li>• Equipment inspected daily prior to use.</li> <li>• PPE inspected daily prior to use</li> <li>• Communications equipment checked daily prior to use.</li> <li>• First aid kits checked daily and inspected weekly.</li> <li>• Fire extinguishers checked daily and inspected weekly,</li> </ul>	<ul style="list-style-type: none"> <li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li> <li>• Site-specific MEC training will be presented to all site personnel.</li> <li>• Site-specific training, slip/fall hazards.</li> <li>• Site-specific training/lifting techniques.</li> <li>• Heat Stress symptoms/first aid.</li> <li>• Site-specific flora/fauna to include first aid.</li> <li>• PPE training.</li> <li>• Current HAZWOPER Training.</li> </ul>
<p>EOD = Explosive Ordnance Disposal  HAZWOPER = Hazardous Waste Operations and Emergency Response  MEC = Munitions and Explosives of Concern  PPE = Personal Protective Equipment  UXO = Unexploded Ordnance</p>		

## Activity Hazard Analysis (AHA)

### Surveying-In the Site Boundaries

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Date/Time: \_\_\_\_\_

UXOSO Name:

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Date/Time: \_\_\_\_\_

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## Activity Hazard Analysis (AHA)

### Vegetation Clearance

<b>Activity: Vegetation Clearance</b>	<b>Date: August 11, 2006</b>
	<b>Project: Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico</b>
<b>Description of the work: Conduct a vegetation removal (as needed) to facilitate a safe and effective MEC surface removal action.</b>	<b>Analyzed By: Robert Crownover, Corporate Safety and Health Mgr.</b>
	<b>Prepared By: Cheryl M. Riordan, CSP</b>
	<b>Review for latest use:</b> Each time before the job is performed.

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>Lanes will be established throughout the footprint of the site.</li> <li>UXO personnel will walk down each lane while visually examining the surface for MEC.</li> <li>If there are areas where dense vegetation prevents a visual surface clearance, geophysical equipment may be used to detect surface MEC.</li> <li>Vegetation is dense in some areas; vegetation clearing will be required using gasoline-powered weed eaters, chain saws, etc.</li> <li>If live MEC is encountered, the area will be marked. A UXO team will perform the disposal operation. The vegetation clearance crew will go around it.</li> <li>If inert MEC is encountered, it will be marked for later inspection and certification.</li> </ul>	<ul style="list-style-type: none"> <li>MEC hazards</li> <li>Uneven working surfaces – slip, trip, fall hazards.</li> <li>Heat Stress</li> <li>Biological hazards - bees, wasps, ticks, mosquitoes, mites, spiders, feral dogs and cats, and poisonous plants.</li> <li>Muscle strain carrying instruments/equipment.</li> <li>Lacerations and cuts from vegetation clearing equipment.</li> <li>Eye/face injuries due to use of vegetation clearing equipment.</li> <li>Noise</li> <li>Equipment hazards.</li> <li>Sunburn.</li> </ul>	<ul style="list-style-type: none"> <li>On-site MEC training.</li> <li>Maintain 200 foot team separation distance.</li> <li>Maintain exclusion zone.</li> <li>Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>Training in biological hazards avoidance.</li> <li>Use insect repellant, sunscreen and barrier cream.</li> <li>Decontaminate persons and equipment as necessary</li> <li>Follow appropriate lifting/ carrying procedures.</li> <li>PPE – hard hat, face shield, safety glasses, hearing protection, leather gloves and leg chaps during vegetation clearance operations.</li> <li>Wear long sleeved shirts and long pants.</li> <li>Maintain positive site control. Cease operations if unauthorized entry is made.</li> <li>Keep personnel to a minimum during operations.</li> <li>Know and observe the safe work practices and operating instructions of the equipment.</li> <li>Guard against splashes and spills of fuel and oil.</li> <li>Guard against burns from hot equipment.</li> <li>Allow equipment to cool down before fueling, sharpening, adjusting or replacing items.</li> <li>Don't fuel equipment in back of pick-up truck with bed-liner.</li> </ul>

## Activity Hazard Analysis (AHA)

### Vegetation Clearance

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"> <li>• Geophysical equipment.</li> <li>• Vegetation removal equipment: weed eaters, chain saws, etc.</li> <li>• Footwear with ankle support and non-slip soles (No steel toes around magnetometers).</li> <li>• Back braces, optional.</li> <li>• Communications equipment.</li> <li>• Appropriate clothing and PPE to include protective eyewear, leather gloves, hard hat, face shield, hearing protection, and leg chaps.</li> <li>• First aid kit.</li> <li>• Fire extinguishers</li> <li>• WBGT Monitor</li> </ul>	<p><b>Team Leader/UXOSO</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"> <li>• Equipment inspected daily prior to use.</li> <li>• PPE inspected daily prior to use</li> <li>• Communications equipment checked daily prior to use.</li> <li>• First aid kits checked daily and inspected weekly.</li> <li>• Fire extinguishers checked daily and inspected weekly,</li> </ul>	<ul style="list-style-type: none"> <li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li> <li>• Site-specific MEC training will be presented to all site personnel.</li> <li>• Site-specific training, slip/fall hazards.</li> <li>• Heat Stress symptoms/first aid.</li> <li>• Site-specific flora/fauna to include first aid.</li> <li>• Training in proper lifting techniques.</li> <li>• Training in use of equipment.</li> <li>• Noise prevention training</li> <li>• PPE training.</li> <li>• All site personnel will have current HAZWOPER training.</li> </ul>
<p>EOD = Explosive Ordnance Disposal  HAZWOPER = Hazardous Waste Operations and Emergency Response  MEC = Munitions and Explosives of Concern  PPE = Personal Protective Equipment  UXO = Unexploded Ordnance</p>		

## Activity Hazard Analysis (AHA)

### Vegetation Clearance

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UXOSO Name:

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Employee Name(s):

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## Activity Hazard Analysis (AHA)

### Surface Clearance

<b>Activity: Surface Clearance</b>	<b>Date: August 11, 2006</b>
	<b>Project: Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico</b>
<b>Description of the work: Conduct an MEC surface clearance.</b>	<b>Analyzed By: Robert Crownover, Corporate Safety and Health Mgr.</b>
	<b>Prepared By: Cheryl M. Riordan, CSP</b>
	<b>Review for latest use:</b> Each time before the job is performed.

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>Lanes will be established throughout the footprint of the site.</li> <li>UXO personnel will walk down each lane while visually examining the surface for MEC.</li> <li>Live MEC that is on the surface or is partially visible on the surface will be disposed of through a blow in place operation if it is unacceptable to move, or in a consolidated shot if it is acceptable to move.</li> <li>Disposal operations will be performed by the UXO team in accordance with standard operating procedures.</li> <li>Inert MEC and MD will be flagged for later collection by the MD inspection and certification team.</li> </ul>	<ul style="list-style-type: none"> <li>MEC hazards</li> <li>Uneven working surfaces – slip, trip, fall hazards.</li> <li>Heat Stress</li> <li>Biological hazards - bees, wasps, ticks, mosquitoes, mites, spiders, feral dogs and cats, and poisonous plants.</li> <li>Sunburn.</li> </ul>	<ul style="list-style-type: none"> <li>On-site MEC training.</li> <li>Maintain 200 foot team separation distance.</li> <li>Maintain exclusion zone</li> <li>Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>Training in biological hazards avoidance.</li> <li>PPE –Caps, safety glasses, hearing protection, leather gloves and cotton work clothing.</li> <li>Wear long sleeved shirts and long pants.</li> <li>Wear cap for head protection and sunscreen.</li> </ul>

## Activity Hazard Analysis (AHA)

### Surface Clearance

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"> <li>• Geophysical equipment.</li> <li>• Footwear with ankle support and non-slip soles (No steel toes around magnetometers).</li> <li>• Communications equipment.</li> <li>• Appropriate clothing and PPE to include cap, protective eyewear, leather gloves, hearing protection.</li> <li>• First aid kit.</li> <li>• Fire extinguishers</li> <li>• WBGT Monitor</li> </ul>	<p><b>Team Leader/UXOSO</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"> <li>• Equipment inspected daily prior to use.</li> <li>• PPE inspected daily prior to use</li> <li>• Communications equipment checked daily prior to use.</li> <li>• First aid kits checked daily and inspected weekly.</li> <li>• Fire extinguishers checked daily and inspected weekly,</li> </ul>	<ul style="list-style-type: none"> <li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li> <li>• Site-specific MEC training will be presented to all site personnel.</li> <li>• Site-specific training, slip/fall hazards.</li> <li>• Heat Stress symptoms/first aid.</li> <li>• Site-specific flora/fauna to include first aid.</li> <li>• Training in proper lifting techniques.</li> <li>• Training in use of equipment.</li> <li>• Noise prevention training</li> <li>• PPE training.</li> <li>• All site personnel will have current HAZWOPER training.</li> </ul>
<p>EOD = Explosive Ordnance Disposal  HAZWOPER = Hazardous Waste Operations and Emergency Response  MEC = Munitions and Explosives of Concern  PPE = Personal Protective Equipment  UXO = Unexploded Ordnance</p>		

## Activity Hazard Analysis (AHA)

### Surface Clearance

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UXOSO Name:

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## Activity Hazard Analysis (AHA)

### Munitions Debris Collection

<b>Activity: Munitions Debris Collection</b>	<b>Date: August 11, 2006</b>
	<b>Project: Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico</b>
<b>Description of the work: Collect munitions debris (MD) from project site in order to facilitate surface MEC clearance.</b>	<b>Analyzed By: Robert Crownover, Corporate Safety and Health Mgr</b>
	<b>Prepared By: Cheryl M. Riordan, CSP</b>
	<b>Review for latest use:</b> Each time before the job is performed.

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>After vegetation clearance team has cleared the site of excess vegetation, the MD collections team will go to the site.</li> <li>Team will travel from grid to grid, in search of munitions debris and inert MEC.</li> <li>When MEC scrap is encountered, two UXO Technicians will verify that it is inert and it will be flagged for a venting operation.</li> <li>When live MEC is encountered, it will be flagged for the UXO team to follow up with the disposal operation.</li> <li>Inert scrap and MD will be verified by two UXO Technicians and placed in a secured bin on the site until the completion of site operations.</li> <li>Range residue will be segregated from other scrap.</li> <li>The bin will remain secured to prevent intermingling of scrap items.</li> <li>Scrap consolidation points will be assigned by the Navy.</li> </ul>	<ul style="list-style-type: none"> <li>MEC hazards</li> <li>Uneven working surfaces – slip, trip, fall hazards.</li> <li>Heat Stress</li> <li>Biological hazards - bees, wasps, ticks, mosquitoes, mites, spiders, feral cats and dogs, and poisonous plants.</li> <li>Sunburn</li> </ul>	<ul style="list-style-type: none"> <li>On-site MEC training.</li> <li>Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>Training in biological hazards avoidance;</li> <li>PPE.</li> <li>Use insect repellent and barrier creams.</li> <li>Wear long sleeved shirts and long pants.</li> <li>Wear cap for head protection and use sunscreen.</li> </ul>

## Activity Hazard Analysis (AHA)

### Munitions Debris Collection

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"><li>• MEC scrap bin, secured.</li><li>• Footwear with ankle support and non-slip soles.</li><li>• Communications equipment.</li><li>• Appropriate clothing and PPE to include leather gloves, cap.</li><li>• First aid kit.</li><li>• Fire extinguishers</li><li>• WBGT Monitor.</li></ul>	<p><b>Team Leader/UXOSO</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"><li>• Equipment inspected daily prior to use.</li><li>• PPE inspected daily prior to use.</li><li>• Communications equipment checked daily prior to use.</li><li>• First aid kits checked daily and inspected weekly.</li><li>• Fire extinguishers checked daily and inspected weekly.</li></ul>	<ul style="list-style-type: none"><li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li><li>• Site-specific MEC training will be presented to all site personnel.</li><li>• Site-specific training on slip, trip and fall hazards.</li><li>• Heat Stress symptoms/first aid.</li><li>• Site-specific flora/fauna to include first aid.</li><li>• All site personnel will have current HAZWOPER training.</li></ul>

## Activity Hazard Analysis (AHA)

### Munitions Debris Collection

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SUXOS Name:

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Date/Time: \_\_\_\_\_

UXOSO Name:

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## Activity Hazard Analysis (AHA)

### MPPEH/Related Scrap Inspection and Certification

<b>Activity: MPPEH/Related Scrap Inspection, Certification and Disposal.</b>	<b>Date: August 11, 2006</b>
	<b>Project: Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico</b>
<b>Description of the work: Inspect and certify MPPEH/related scrap collected on the project site.</b>	<b>Analyzed By: Robert Crownover</b>
	<b>Prepared By: Cheryl M. Riordan, CSP</b>
	<b>Review for latest use:</b> Each time before the job is performed.

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>When MEC scrap is encountered, two UXO Technicians will verify that it is inert.</li> <li>After a disposal operation, disposal team will check area of the shot for MEC scrap and two UXO technicians will verify that it is inert.</li> <li>Inert scrap will be placed in a secured bin on the site until the completion of site operations.</li> <li>The bin will remain secured to prevent intermingling of scrap items.</li> <li>QC Specialist will inspect bin periodically to assure procedures are followed and no live MEC is intermingled.</li> </ul>	<ul style="list-style-type: none"> <li>MEC hazards</li> <li>Uneven working surfaces – slip, trip, fall hazards.</li> <li>Heat Stress</li> <li>Biological hazards - bees, wasps, ticks, mosquitoes, mites, spiders, feral dogs and cats, and poisonous plants.</li> <li>Sunburn.</li> </ul>	<ul style="list-style-type: none"> <li>On-site MEC training.</li> <li>Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>Training in biological hazards avoidance;</li> <li>Use insect repellent and barrier cream.</li> <li>PPE Leather work gloves.</li> <li>Wear long sleeved shirts and long pants.</li> <li>Wear cap for head protection and use sunscreen.</li> </ul>

## Activity Hazard Analysis (AHA)

### MPPEH/Related Scrap Inspection and Certification

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"><li>• MEC scrap bin, secured.</li><li>• Footwear with ankle support and non-slip soles.</li><li>• Communications equipment.</li><li>• Appropriate clothing and PPE to include leather gloves.</li><li>• First aid kit.</li><li>• Fire extinguishers</li><li>• WBGT Monitor</li></ul>	<p><b>Team Leader/UXOSO</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"><li>• Equipment inspected daily prior to use.</li><li>• PPE inspected daily prior to use.</li><li>• Communications equipment checked daily prior to use.</li><li>• First aid kits checked daily and inspected weekly.</li><li>• Fire extinguishers checked daily and inspected weekly.</li></ul>	<ul style="list-style-type: none"><li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li><li>• Site-specific MEC training will be presented to all site personnel.</li><li>• Site-specific training on slip, trip and fall hazards.</li><li>• Heat Stress symptoms/first aid.</li><li>• Site-specific flora/fauna to include first aid.</li><li>• All site personnel will have current HAZWOPER training.</li></ul>



Activity Hazard Analysis (AHA)

MPPEH/Related Scrap Inspection and Certification

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## Activity Hazard Analysis (AHA)

### MEC Disposal Operations

<b>Activity: MEC Disposal Operations</b>	<b>Date: August 11, 2006</b>
	<b>Project: Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico</b>
<b>Description of the work: Disposal of MEC/UXO Encountered, by Means of Detonation.</b>	<b>Analyzed By: Robert Crownover</b>
	<b>Prepared By: Cheryl M. Riordan</b>
	<b>Review for latest use:</b> Each time before the job is performed.

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>• All disposal will be either a blow in place operation or a consolidated shot.</li> <li>• Evacuate area around disposal operation for 5,640 feet except for personnel involved in disposal operation.</li> <li>• Exclusion zone may vary depending on the fragmentation distance of the item in question. Fragmentation distance will be determined prior to disposal with the concurrence of the Navy Representative and/or the Title II Contractor.</li> <li>• Place guard on access road at fragmentation distance to assure no further entry into site.</li> <li>• Identify item.</li> <li>• Prepare shot.</li> <li>• Personnel performing disposal evacuate to fragmentation distance or to shielded area.</li> <li>• Observe area for potential unauthorized entrants. If any are observed, halt operation until they are removed.</li> <li>• Sound signal for impending shot.</li> <li>• Perform disposal operation.</li> <li>• Check to see that disposal operation</li> </ul>	<ul style="list-style-type: none"> <li>• MEC hazards</li> <li>• Uneven working surfaces – slip, trip, fall hazards.</li> <li>• Heat Stress</li> <li>• Biological hazards - bees, wasps, ticks, mosquitoes, mites, spiders, feral dogs and cats, and poisonous plants.</li> <li>• Sunburn.</li> </ul>	<ul style="list-style-type: none"> <li>• On-site MEC Training.</li> <li>• Establish exclusion Zone.</li> <li>• Controlled use of radios and cell phones.</li> <li>• Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>• Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>• Training in biological hazards avoidance;</li> <li>• Use insect repellent and barrier creams.</li> <li>• Wear long sleeved shirts and long pants.</li> <li>• Wear cap for head protection and use sunscreen.</li> </ul>

## Activity Hazard Analysis (AHA)

### MEC Disposal Operations

was successful. <ul style="list-style-type: none"><li>• If not successful, repeat disposal operation.</li><li>• Give signal that operation is complete.</li></ul>		
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## Activity Hazard Analysis (AHA)

### MEC Disposal Operations

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"><li>• Appropriate geophysical equipment.</li><li>• Footwear with ankle support and non-slip soles (no steel toes around magnetometers).</li><li>• Communications equipment.</li><li>• Appropriate clothing and PPE to include leather gloves, safety glasses or goggles, and hearing protection.</li><li>• First aid kit.</li><li>• Fire extinguishers</li><li>• WBGT Monitor.</li></ul>	<p><b>Team Leader/UXOSO</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"><li>• Equipment inspected daily prior to use.</li><li>• PPE inspected daily prior to use.</li><li>• Communications equipment checked daily prior to use.</li><li>• First aid kits checked daily and inspected weekly.</li><li>• Fire extinguishers checked daily and inspected weekly,</li></ul>	<ul style="list-style-type: none"><li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li><li>• Training is use of geophysical equipment.</li><li>• Site-specific MEC training will be presented to all site personnel.</li><li>• Site-specific training on slip, trip and fall hazards.</li><li>• Heat Stress symptoms/first aid.</li><li>• Site-specific flora/fauna to include first aid.</li><li>• All site personnel will have current HAZWOPER training.</li></ul>

## Activity Hazard Analysis (AHA)

### MEC Disposal Operations

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## Activity Hazard Analysis (AHA)

### Disposal of MEC Scrap

<b>Activity: Disposal of MEC Scrap</b>	<b>Date: August 11, 2006</b>
	<b>Project: Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico</b>
<b>Description of the work: Dispose of MEC related scrap collected on the project site.</b>	<b>Analyzed By: Robert Crownover</b>
	<b>Prepared By: Cheryl M. Riordan, CSP</b>
	<b>Review for latest use:</b> Each time before the job is performed.

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
<ul style="list-style-type: none"> <li>When MEC scrap is encountered, two UXO Technicians will verify that it is inert.</li> <li>After a disposal operation, disposal team will check area of the shot for MEC scrap and two UXO technicians will verify that it is inert.</li> <li>Inert scrap will be placed in a secured bin on the site until the completion of site operations.</li> <li>The bin will remain secured to prevent intermingling of scrap items.</li> <li>QC Specialist will inspect bin periodically to assure procedures are followed and no live MEC is intermingled.</li> <li>At conclusion of site operations, the MEC scrap will be certified and transferred to an approved recycler for demilitarization and recycling of the metal scrap.</li> </ul>	<ul style="list-style-type: none"> <li>MEC hazards</li> <li>Uneven working surfaces – slip, trip, fall hazards.</li> <li>Heat Stress</li> <li>Biological hazards - bees, wasps, ticks, mosquitoes, mites, spiders, feral dogs and cats, and poisonous plants.</li> <li>Sunburn.</li> <li>Laceration hazards.</li> </ul>	<ul style="list-style-type: none"> <li>On-site MEC training.</li> <li>Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>Training in biological hazards avoidance;</li> <li>Use insect repellent and barrier creams.</li> <li>PPE – cotton work clothing, leather work gloves, safety glasses.</li> <li>Wear long sleeved shirts and long pants.</li> <li>Wear cap for head protection and use sunscreen.</li> </ul>

## Activity Hazard Analysis (AHA)

### Disposal of MEC Scrap

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"><li>• MEC scrap bin, secured.</li><li>• Footwear with ankle support and non-slip soles.</li><li>• Communications equipment.</li><li>• Appropriate clothing and PPE to include leather gloves and safety glasses.</li><li>• First aid kit.</li><li>• Fire extinguishers</li><li>• WBGT Monitor</li></ul>	<p><b>Team Leader/UXOSO</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"><li>• Equipment inspected daily prior to use.</li><li>• PPE inspected daily prior to use.</li><li>• Communications equipment checked daily prior to use.</li><li>• First aid kits checked daily and inspected weekly.</li><li>• Fire extinguishers checked daily and inspected weekly,</li></ul>	<ul style="list-style-type: none"><li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li><li>• Site-specific MEC training will be presented to all site personnel.</li><li>• Site-specific training on slip, trip and fall hazards.</li><li>• Heat Stress symptoms/first aid.</li><li>• Site-specific flora/fauna to include first aid.</li><li>• All site personnel will have current HAZWOPER training.</li></ul>

## Activity Hazard Analysis (AHA)

### Disposal of MEC Scrap

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## Activity Hazard Analysis (AHA)

### QC Inspection

<b>Activity:</b> Quality Control Inspection.	<b>Date:</b> August 11, 2006
	<b>Project:</b> Munitions Removal Action, LIA and ECA Sites, Former Vieques Naval Training Range, Vieques Island, Puerto Rico
<b>Description of the work:</b> Inspect work performance of project personnel and task at project site.	<b>Analyzed By:</b> Robert Crownover, Corporate Safety and Health Mgr
	<b>Prepared By:</b> Cheryl M. Riordan, CSP
	<b>Review for latest use:</b> Each time before the job is performed.

Task Breakdown	Identify & Analyze the Hazards	Identify Hazard Controls
<ul style="list-style-type: none"> <li>• Inspection of Project Documentation, Site Conditions, Work Performance and Operations.</li> <li>• Inspection of Material and Packaging of Containers.</li> <li>• Inspection of Completed Project Documentation.</li> </ul>	<ul style="list-style-type: none"> <li>• MEC hazards</li> <li>• Uneven working surfaces – slip, trip, fall hazards.</li> <li>• Muscle strain carrying instruments</li> <li>• Heat Stress</li> <li>• Biological hazards – bees, wasps, ticks, mosquitoes, mites spiders feral dogs and cats, and poisonous plants.</li> <li>• Damaged Container.</li> <li>• Unauthorized personnel entering site during operations.</li> <li>• Laceration hazards.</li> <li>• Sunburn.</li> </ul>	<ul style="list-style-type: none"> <li>• On-site MEC Training.</li> <li>• Observe all MEC safety precautions, such as movement, heat, shock, and friction.</li> <li>• Post barriers and barricades as necessary prior to commencing operations and maintain positive site control.</li> <li>• Only UXO qualified personnel will handle MEC items if encountered.</li> <li>• Wear the appropriate PPE for the task being performed.</li> <li>• Keep personnel to a minimum during operations.</li> <li>• Ensure required site documentation is on hand.</li> <li>• Ensure logs, briefings, reports and forms are completed in a timely and accurate manner.</li> <li>• Use and enforce the buddy system.</li> <li>• Ensure 1<sup>st</sup>. Aid Kits and Fire Extinguishers are in place.</li> <li>• No smoking, except in designated areas.</li> <li>• Be observant while walking. Use sturdy leather work boots with ankle support and non-slip soles.</li> <li>• Follow appropriate lifting/ carrying procedures</li> <li>• Heat stress monitoring, drinking water, work-rest schedule, and cool shelter for breaks.</li> <li>• Training in biological hazards avoidance;</li> <li>• Use insect repellant and barrier cream.</li> <li>• Wear cap for head protection and use sunscreen.</li> <li>• Observe all MEC safety precautions, and follow safe work practices.</li> </ul>

## Activity Hazard Analysis (AHA)

### QC Inspection

		<ul style="list-style-type: none"> <li>• Inspection of material will be made by UXO qualified personnel.</li> <li>• Be alert. Cease operations if unsafe conditions arise.</li> <li>• Identify safety/hazardous zones of operations.</li> <li>• Ensure containers are properly marked, labeled, and stored.</li> <li>• Review DD Form 1348-1A for required information.</li> <li>• Review or inspect all site generated documents for accuracy and deliverability.</li> <li>• Ensure concerned parties receive copies of documents pertaining to their activities.</li> <li>• Ensure contract deliverables have been met.</li> </ul>
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Equipment to be used	Inspection Requirements	Training Requirements
<ul style="list-style-type: none"> <li>• Appropriate geophysical equipment.</li> <li>• Hand tools.</li> <li>• Footwear with ankle support and non-slip soles (no steel toes around magnetometers).</li> <li>• Back braces (optional)</li> <li>• Communications equipment.</li> <li>• Appropriate clothing and PPE to include hard hat, safety glasses or goggles, leather gloves and hearing protection where applicable.</li> <li>• Barricades and signage.</li> <li>• First aid kit.</li> <li>• Fire extinguishers.</li> <li>• WBGT Monitor</li> </ul>	<p><b>The UXOQCS</b> will assure that all controls are being followed; all equipment is being utilized and that all personnel have received appropriate training.</p> <ul style="list-style-type: none"> <li>• Equipment inspected daily prior to use.</li> <li>• PPE inspected daily prior to use.</li> <li>• Communications equipment checked daily prior to use.</li> <li>• First aid kits checked daily and inspected weekly.</li> <li>• Fire extinguishers checked daily and inspected weekly.</li> </ul>	<ul style="list-style-type: none"> <li>• Valid drivers' license/operators permit/certificate.</li> <li>• UXO personnel will meet training and experience requirements outlined in DDESB TP 18.</li> <li>• Site-specific MEC training will be presented to all site personnel.</li> <li>• All UXO personnel will receive refresher training in excavating of anomalies.</li> <li>• Site-specific training on slip, trip and fall hazards.</li> <li>• Site-specific training/lifting techniques.</li> <li>• Heat Stress symptoms/first aid.</li> <li>• Site-specific flora/fauna to include first aid.</li> <li>• All site personnel will have current HAZWOPER training.</li> <li>• Requirements under DoD 4160.21-M.</li> <li>• Required documents for inspection, certification, and verification of MEC/UXO/MPPEH related scrap.</li> </ul>

## Activity Hazard Analysis (AHA)

### QC Inspection

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## APPENDIX D - ATTACHMENT 3

### D-3.0 DIRECTIONS TO HOSPITAL

The following map indicates the location of the Vieques Hospital (in the south west corner of the map (upper right corner of map), located at Carr. 997 Kilometer 1 Ht. 0, Barrio Destino, Vieques, Puerto Rico 00765.

Figure D-3-1: Hospital General Location

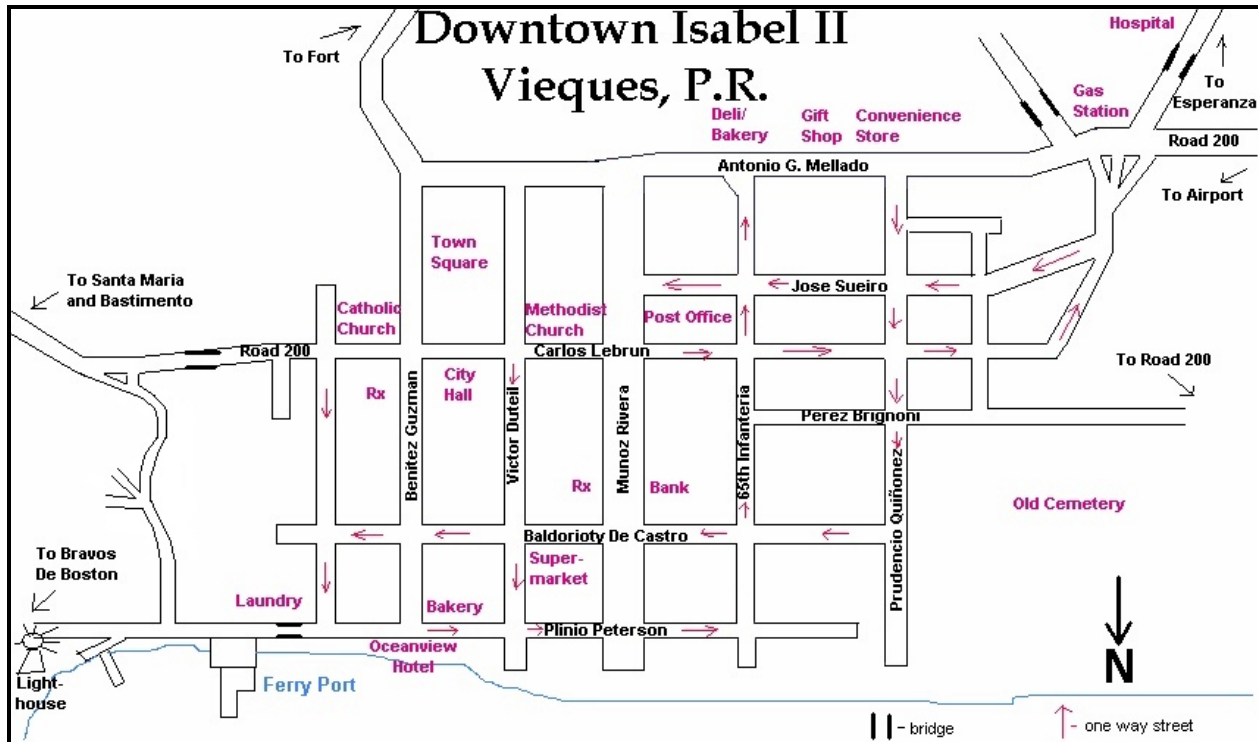


Table D-3-1: Emergency Phone Numbers

Vieques Hospital	Admin: 787-741-0392 Emergency: 787-741-2151
Aeromed Medical Evacuation	787-756-3480
Fire/Police/Ambulance	911
Poison Control	800-222-1222
USA Occupational Physician	831-647-8700

## **APPENDIX D - ATTACHMENT 4**

### **D-4.0 SITE SAFETY AND HEALTH PLAN**

This attachment contains the Site Safety and Health Plan for the Munitions Removal Action at the LIA, located on Vieques, Puerto Rico.

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SITE HEALTH AND SAFETY PLAN  
MUNITIONS REMOVAL ACTION WORK PLAN  
LIVE IMPACT AREA - FORMER VIEQUES NAVAL TRAINING RANGE  
VIEQUES ISLAND, PUERTO RICO

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SITE HEALTH AND SAFETY PLAN

Plan approval:

 Date: 8/10/06  
Cheryl M. Riordan, CSP  
Program Occupational Safety Manager  
USA Environmental, Inc.  
(757) 486-8567



Plan concurrence:

 Date: 8/10/06  
Robert Crownover  
Program Safety and Health Manager  
USA Environmental, Inc.  
(813) 343-6364

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## ACRONYMS AND ABBREVIATIONS

AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
CFR	Code of Federal Regulations
CHSM	Corporate Health and Safety Manager
DoD/DOD	Department of Defense
EM	Engineer Manual
EZ	Exclusion Zone
LIA	Live Impact Area
MEC	Munitions and Explosives of Concern
MGFD	Munition with the Greatest Fragmentation Distance
MSD	Minimum Separation Distance
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
SHSP	Site Health and Safety Plan
SOW	Statement of Work
SUXOS	Senior Unexploded Ordnance Supervisor
SZ	Support Zone
TCRA	Time Critical Removal Action
USACE	United States Army Corps of Engineers
UXO	Unexploded Ordnance
UXOSO	Unexploded Ordnance Safety Officer
VNTR	Vieques Naval Training Range

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## **1.0 INTRODUCTION**

This Site Health and Safety Plan (SHSP) establishes the responsibilities, requirements, and procedures for protecting the project personnel and the surrounding community from the hazards associated with a Munitions Removal Action. This Contract Task Order requires the removal of all munitions and explosives of concern (MEC) from the surface of the Live Impact Area (LIA) at the Former Vieques Naval Training Range (VNTR) on Vieques Island, Puerto Rico. Based on historical records and former use of these areas, MEC may constitute a risk to the local public and environment.

### **1.1 SITE DESCRIPTION**

The LIA is located on the eastern side of Vieques Island. Vieques is characterized by gently rolling hills and valleys with the eastern side exhibiting a more rugged terrain. The LIA is relatively flat with elevations ranging from 0 to approximately 50 feet above mean sea level. There are various densities of vegetation ranging from light to thick vegetation in the area. Rainy season is during the summer and early autumn months, during which heavy rainfall can be expected.

### **1.2 CONTAMINANT CHARACTERISTICS**

Contamination is considered extensive on VNTR. As per Table 1-2 of the Master Time Critical Removal Action (TCRA) Work Plan (CH2M HILL, 2005), there has been a wide variety of munitions used and potentially still present.

## **2.0 HEALTH AND SAFETY HAZARD ASSESSMENT**

An Activity Hazard Analysis (AHA) has been conducted and documented for each activity warranted by the hazards associated with the project (see Attachment 2 for the site-specific AHAs). The following AHAs have been prepared for all anticipated field operations within the LIA:

- Surveying-in the Site Boundaries and Grid System;
- Vegetation Clearance;
- Surface Clearance;
- Munitions Debris Collection;
- MEC Scrap Inspection and Certification;
- MEC Disposal Operations;
- Disposal of MEC Scrap; and
- Quality Control.

Should conditions, equipment, or types of operations change during the course of the project work, the Corporate Health and Safety Manager (CHSM) will update an existing AHA for continuing work, or prepare a new AHA for new operations. The site exclusion zone (EZ) will be based on the fragmentation distance of 5,640 feet (based upon the munition with the greatest fragmentation distance [MGFD], the 16"/50 projectile), or adjusted per the concurrence of the Navy Representative and the Title II Contractor, based upon the actual operation and MEC involved. In addition, a minimum separation distance (MSD) of 200 feet will be established between unexploded ordnance (UXO) teams to protect individual operating units in the event of an accidental detonation while operations are underway. The MSD of 200 feet is in accordance with Engineer Manual (EM) 1110-1-4009, Engineering and Design Ordnance and Explosives

Response, 23 June 2000; United States Army Corps of Engineers (USACE) regulations; and the Memorandum on the Determination of Appropriate Safety Distances on Ordnance and Explosives (OE) Project Sites, OE Center of Expertise (CX) Interim Guidance Document 00-01. If an MEC item with a larger fragmentation distance is encountered during site operations, the MGF and MDS will be re-evaluated and re-established. Fragmentation zones would be extended in accordance with the Department of Defense Explosive Safety Board Technical Paper 16. The EZ will be based on the largest and most hazardous item encountered at the site.

Risk management is and will continue to be integrated into the planning, preparation, and execution of all operations at the LIA. Risk management is a dynamic process, and is continuously improved upon as personnel become more familiar with the site operations, equipment, and environment. Site personnel are trained to continuously identify hazards and assess accident risks. Once identified, these hazards will be brought to the attention of the Team Leader or UXO Safety Officer (UXOSO). Control measures will be developed and coordinated by PRI-USA JV safety personnel. All site personnel are responsible for continuous assessment of variable hazards and the implementation of risk controls.

## 2.1 HAZARD MITIGATION

The hazards listed above will be addressed through a combination of training, engineering controls, and personal protective equipment (PPE).

### 2.1.1 IMPLEMENTATION OF ENGINEERING CONTROLS AND WORK PRACTICES

Training for site procedures and the use of site equipment can prevent accidents from occurring. Training in recognition of MEC, or MEC-related items that could be hazardous, will be given to all site workers. When MEC, material potentially presenting an explosive hazard, or munitions debris are encountered, site personnel will contact an UXO-qualified technician to handle the situation. Other controls include the MSD of 200 feet, which will provide protection of individual teams from nearby site operations, and the exclusion zone of 5,640 feet, which will be used to keep unauthorized personnel out of the site operations area.

### 2.1.2 UPGRADES/DOWNGRADES IN LEVELS OF PERSONAL PROTECTIVE EQUIPMENT

Due to the types of hazards at this site, Level D PPE will be required. This type of PPE is used for levels of contamination that may present a nuisance, but not an identifiable hazard. Level D PPE consists of a hard hat, coverall or suitable work clothing, safety glasses or goggles, face shield (for vegetation clearance operations); hearing protection (for vegetation clearance operations), leg chaps (for vegetation clearance operations); leather work gloves, and leather work boots with ankle support and non-slip soles. The hard hat will only be worn in head hazard areas. It is recommended that a cap be worn to provide protection from the sun during site operations. If site hazards are encountered that require additional PPE, the PPE level can be increased by the CHSM (at the recommendation of the on-site UXOSO), who would base the decision on documented evidence of the hazards. If the site is not as hazardous as originally anticipated, the level of PPE can be downgraded by the CHSM. This decision would also be based on definitive data that confirms the PPE can be lessened. Normally, downgrading of PPE would require at least one week's worth of data demonstrating that the site is not as hazardous as originally suspected.

### 2.1.3 WORK STOPPAGE

All personnel are trained to be constantly aware of their work environment. Everyone has the ability to stop operations for safety reasons. No worker is expected to perform any operation for which he has not

been properly trained, or to perform any operation that is considered to be unsafe. If operations are stopped for safety reasons, the UXOSO will be notified and will evaluate the situation. The UXOSO will, in consultation with the CHSM, determine what steps need to be taken to make the situation safe for operations to continue.

#### 2.1.4 EMERGENCY EVACUATION

In the event of an emergency that requires evacuation of the site; verbal instruction will be given by the UXOSO to evacuate the area. Personnel will exit the area to the pre-designated assembly point. After evacuation, the UXOSO will account for all personnel, ascertain information about the emergency and advise responding on-site personnel. The UXOSO will contact, advise, and coordinate with responding off-site emergency personnel if deemed necessary by the situation.

In all situations that require evacuation, personnel shall not re-enter the work area until:

- The conditions causing the emergency have been corrected;
- The hazard has been reassessed;
- The SHSP has been revised and reviewed with on-site personnel, if needed; and
- Instructions have been given for authorized re-entry by the UXOSO.

#### 2.1.5 PREVENTION AND/OR MINIMIZATION OF PUBLIC EXPOSURE TO HAZARDS CREATED BY SITE ACTIVITIES

The creation of an EZ of 5,640 feet between the site footprint and the general public, acts as a safety buffer to protect the public from site hazards. Controlling access to the site, closing roads, and installing signs and barricades are all means of keeping the general public from accidentally wandering into the site during operations. In addition, the training of all site workers in the hazards and recognition of MEC will reduce the potential for public exposure to hazards. Any worker observing MEC or pieces of MEC will not touch or handle it in any way and will immediately inform a UXO Technician. If the UXO Technician determines it to be a hazard, the UXO Technician will inform his supervisor who at that time provide instructions. If unauthorized personnel are observed in the EZ, all MEC operations will cease until the area is cleared of unauthorized personnel.

### 3.0 SAFETY STAFF

See Section 4 of the Accident Prevention Plan (APP).

### 4.0 HEALTH AND SAFETY STAFF ORGANIZATION AND RESPONSIBILITIES

See Section 4 of the APP.

### 5.0 SITE-SPECIFIC TRAINING

See Section 6 of the APP.

### 6.0 SITE-SPECIFIC MEDICAL SURVEILLANCE

All PRI and USA employees assigned to this CTO will be participants in a medical surveillance program in accordance with the requirements of the Occupational Safety and Health Administration (OSHA) 29 Code

of Federal Regulations (CFR) 1910.120(f), 29 CFR 1910.134(b)(10) and other established guidelines. Personnel to be included in the Medical Surveillance Program will be those who perform hazardous waste operations that may potentially expose the worker to hazardous substances or other significant safety and health threats. Visitors desiring entry into the EZ must participate in their respective employer's Medical Surveillance Program and must have a current physician's statement prior to entry.

#### 6.1 BASELINE HEALTH ASSESSMENT PHYSICAL OR ANNUAL PHYSICAL

A baseline health assessment physical or annual physical will be conducted prior to participating in site operations, to determine the worker's ability to perform hazardous waste operations in a safe and healthful manner. The Project Manager, in conjunction with the CHSM, will ensure that all health assessments address the site-specific health hazards to which workers may be exposed.

Physicals will be scheduled through the CHSM or his staff, who will contract the services of a board certified occupational medicine physician in the vicinity of the employee's home or job site. The designated physician will perform the medical assessments and review medical examination results to determine each worker's ability to perform his assigned hazardous waste duties. The physician will also be responsible for determining if supplemental or follow-up examinations are required, and for maintaining medical and exposure records in accordance with OSHA 29 CFR 1910.120(d).

The purpose of the Medical Surveillance Program is to:

- Assess the individual's health status prior to participation in hazardous waste operations;
- Determine the individual's ability to perform work assignments that require the use of PPE;
- Establish baseline data for comparison to future medical data in order to provide a means of monitoring a worker's health status;
- Establish facilities and procedures for emergency and non-emergency medical treatment; and
- Establish procedures for maintenance and storage of medical and exposure records.

Medical surveillance program examination consists of:

- Medical and occupational history questionnaire, which includes information on past gastrointestinal, hematological, renal, cardiovascular, reproductive, immunological, and neuralgic problems;
- Information and history of respiratory disease and personal smoking habits;
- Physical examination;
- Blood pressure measurements;
- Complete blood count and differential to include hemoglobin and hematocrit determinations, red cell indices, and smear of peripheral morphology;
- Blood urea nitrogen and serum creatinine;
- SMAC 24;
- Chest x-ray;
- Pulmonary function test;
- Audiogram;

- Echocardiogram for employees over 45 years old, or when other complications indicate the necessity;
- Drug (HR Panel 10) and alcohol screening; and
- Visual acuity.

The following information is provided to the examining physician:

- Description of the employee's duties;
- Anticipated hazards exposure and levels;
- Description of the PPE commonly used; and
- Information from previous medical exams.

The medical surveillance provided to the employees includes a judgment by the medical examiner of the ability of the employee to use either positive or negative pressure respiratory equipment in accordance with 29 CFR 1910.134. Any employee found to have a medical condition that could directly or indirectly be aggravated by exposure to chemical substances or by the use of respiratory equipment will not be employed for any project requiring clearance under the Respiratory Protection Program. A copy of the medical examination can be provided to the employee upon request.

The employee will be informed of any medical conditions that would result in work restriction or that would prevent them from working at hazardous waste sites.

Contractors will certify that all their employees have successfully completed a physical examination by a qualified occupational health physician and will supply certification of medical clearance for each on-site employee.

## 6.2 PHYSICIAN'S STATEMENT

The results of this examination will be made available to the employee (upon request) and a written physician's statement will be sent to the respective employer. A copy of the physician's statement will be kept in each employee's file at the project site for the duration of site operations. The physician's statement will include the following:

- The physician's opinion regarding any conditions that would place the employee at an increased risk from working in hazardous waste operations;
- The physician's recommended limitations upon the employee's assigned work, if any; and
- A statement that the employee has been informed by the physician of the results of the examination, and any conditions that may require further examination or treatment.

## 6.3 SUPPLEMENTAL EXAMINATION

Any site worker who has: been injured; received health impairment; developed signs or symptoms from possible over-exposure; or received a documented over-exposure without the use of respiratory protection, will undergo a supplemental examination. The contents of this examination will be based upon the type of injury, illness, signs or symptoms of exposure involved and will be determined by the physician. Prior to reassignment to site activities, the physician will certify that the employee is fit to return

to work. If necessary, the physician will specify in writing any activity restrictions or additional tests that may be required.

#### 6.4 FOLLOW-UP HEALTH ASSESSMENTS

If, during any pre-assignment, annual or supplemental examination, a condition is detected that requires follow-up tests, the physician will notify the respective employer and the employee as to the nature of the follow-up health assessment. The physician will determine the schedule and content of the follow-up health assessment. A statement outlining the employee's fitness for work will be provided to the respective employer and the employee upon conclusion of the follow-up health assessment.

#### 6.5 EMERGENCY AND NON-EMERGENCY MEDICAL TREATMENT

All site personnel will report to the UXOSO when injuries occur. At least two persons on the site will be certified in CPR and First Aid. These persons will be the first responders during accidents. The site will have a first aid kit in the site office as well as additional first aid kits in each of the site vehicles, which will be inspected at least weekly by the UXOSO and appropriately maintained. For serious injuries, the medical treatment facility for use at this project site will be Vieques Hospital (see Attachment 3 to the APP for hospital contact information).

#### 6.6 MEDICAL RESTRICTION

Should an occupational injury or illness occur that restricts an employee's ability to function at full capacity, the employee will abide by the respective employer policy for medical restrictions.

#### 6.7 RECORD KEEPING

PRI and USA will retain and maintain copies of all physician statements, exposure records, and associated information for PRI-USA JV employees involved in hazardous waste operations, in accordance with the requirements of 29 CFR 1910.120(f). These records will be kept at the project site for the duration of site operations. When the site work is complete, the records will be retained by PRI-USA JV at the Corporate Office as part of official site records and personnel records. Examining physicians will be responsible for maintaining records related to laboratory analyses and other tests for each PRI-USA JV employee examined. All records, whether maintained by PRI-USA JV or by the examining physician, will be kept on file for a period of 30 years beyond an employee's termination.

### 7.0 PERSONAL PROTECTIVE EQUIPMENT

The minimal level of protection for each employee will be required by each respective employer (of the JV) and in accordance with the Master TCRA Work Plan (CH2M HILL, 2005). It is planned that all operations will be in Level D PPE at this time. The UXOSO may increase the level of protection due to changing requirements but may not decrease the level of protection without approval of corporate safety management. The following equipment will be used for Level D protection:

- Hat – head protection from the sun;
- Hard hat for use during vegetation clearance operations and if overhead hazards or heavy equipment is encountered or operated;
- Face shield, as required in the vicinity of vegetation removal operations;
- Leather work gloves;

- Safety glasses with side shields or safety goggles;
- Hearing protection, where required by high noise levels (i.e., in the vicinity of vegetation clearance operations);
- Leather work boots with ankle support and non-slip soles. No steel toe shoes in the vicinity of magnetometer operations;
- Cotton work clothes or coveralls; and
- Leg chaps – when working around vegetation removal equipment.

## **8.0 MONITORING AND SAMPLING PLANS**

Chemical monitoring or sampling of soil and water is not required, as they are not part of this task order. Due to the time of year that this work is taking place, both heat stress monitoring and meteorological monitoring will be performed. All site monitoring data will be recorded using the Site Monitoring Log and will be maintained as part of the project record.

### **8.1 HEAT STRESS MONITORING**

Heat stress monitoring will be conducted using temperature readings, obtained from an on-site thermometer, in order to assure adequate work/rest cycles are determined and implemented at the site. When the temperature exceeds 70 degrees Fahrenheit heat stress monitoring is required. Monitoring will be performed by the UXOSO and results will be documented. Plenty of drinking water will be available on site to maintain hydration of site personnel.

### **8.2 METEOROLOGICAL MONITORING**

Rain can constitute a safety hazard to field operations at this site. The UXOSO will be responsible for monitoring the weather closely. If the area becomes wet, muddy, or slippery such that an unacceptable level of risk exists for personnel who are working in proximity to MEC items, then site operations will cease until the UXOSO determines the area as safe to continue.

No site operations will take place if an electrical storm is within 10 miles of the site. An electrical storm monitor will be used to determine if an electrical storm is approaching. Personnel will evacuate the site to the pre-designated evacuation point and will await the determination by the UXOSO that it is safe to resume operations.

### **8.3 PERIMETER MONITORING**

Per the TCRA Master Work Plan (CH2M HILL, 2005), no perimeter monitoring of PRI-USA JV operations will be required on this site.

## **9.0 HEALTH AND SAFETY WORK PRECAUTIONS AND PROCEDURES**

Using common sense and following safe practices can reduce hazards. All personnel will follow the guidelines listed below.

- Hazard assessment is a continuous process. Personnel must be aware of their surroundings and constantly be aware of MEC, chemical, and physical hazards that are or may be present.



- The number of personnel in the EZ will be the minimum number necessary to perform work tasks in a safe and efficient manner.
- Team members will be familiar with the physical characteristics of each site including wind direction, site access, and the location of communication devices and safety/emergency equipment.
- Detection or appearance of unusual or unknown liquids, odors or discolored soil could indicate the presence of contaminants and should be reported to the UXOSO immediately.
- Site personnel are to report any other unusual or potentially hazardous condition to the UXOSO for investigation and/or corrective action.

## 9.1 SITE RULES/PROHIBITIONS

All personnel on site will be required to follow the safe work practices contained in this SHSP, as they relate to the hazards encountered during site activities. All site personnel will be required to read, understand, and comply with the provisions of this SHSP. If new tasks or hazards are identified during site operations, which pose additional hazards, the SHSP will be amended by the CHSM or his staff to include additional safe work practices and other control methods as needed.

### 9.1.1 SAFE PRACTICES

Safe practices can reduce hazards associated with normal site activities. All personnel will follow the guidelines listed below:

- Horseplay or fighting is prohibited.
- Eating, drinking, smoking, chewing gum, tobacco, or any other hands-to-face activities are prohibited on site, except in designated areas after both face and hands have been washed.
- When required to sit or kneel on the ground, avoid contaminated surfaces.
- Placing equipment on contaminated surfaces should be avoided.
- Climbing on or over obstacles is prohibited. Stacks of materials can be unstable and could cause injury.
- Open flames of any type are prohibited on site.
- Defective or unsafe equipment on site is prohibited.

Only authorized employees may enter the work site. Visitors must check in with the UXOSO, receive an appropriate safety briefing, and be escorted by UXO-qualified personnel at all times while on site.

### 9.1.2 BUDDY SYSTEM

The buddy system is a safety practice in which each individual is concerned with the health and well being of co-workers. The buddy system will be implemented during all on-site activities and will be incorporated when workers may be isolated or as determined by the UXOSO. The UXOSO will assign "buddies" to ensure accounting of all site personnel. Additional procedures include:

- A minimum of two personnel, one being a UXO-qualified person will be present during all MEC operations. One person will act as a safety observer and personnel will maintain visual and audio contact with each other at all times. During all MEC operations, only the minimum number of personnel required to safely perform the task will be allowed on site.

- At no time will an individual desert his “buddy” unless his “buddy” goes down, and it is considered too hazardous to render assistance. “Buddies” will enter and exit the EZ together and frequently monitor one another for signs of fatigue, heat stress, and any other problems. In such cases, the worker in danger may not be aware he/she is having a problem. The “buddy” must always be alert to changes in the behavior of his “buddy” so that he can remove him/her from the situation immediately.
- “Buddies” should frequently inspect each other’s equipment, including PPE, to ensure that it is adequate and in proper working order.

## 9.2 WORK PERMIT REQUIREMENTS

At this time PRI-USA JV does not anticipate work permits for the work associated with this project. Under the Statement of Work (SOW) and activities anticipated for this project, there are no requirements for hot work, (welding). All site personnel will utilize the general fire safety precautions and procedures to eliminate the hazards from ignition sources. Excavation work is not expected to occur, and there are expected to be no confined spaces or radioactive work associated with this task order. Should this situation change, this SHSP will be amended to include these additional hazards, and shall handle them in accordance with the respective companies Corporate Safety and Health Program, which addresses all of these issues.

## 9.3 MATERIAL HANDLING PROCEDURES

Many types of objects are handled in normal day-to-day operations. Care will be taken and training will be provided to all personnel for lifting and handling heavy or bulky items, as this is the cause of many joint and back injuries. The following fundamentals address the proper lifting of materials to avoid joint and back injuries:

- The size, shape, and weight of the object to be lifted must be considered. Site personnel will not lift more than they can handle comfortably.
- A firm grip on the object is essential; therefore, the hands and object will be free of oil, grease, and water, which might prevent a firm grip.
- The hands, and especially the fingers, will be kept away from any points that may cause them to be pinched or crushed, especially when setting the object down.
- The item will be inspected for metal slivers, jagged edges, burrs, rough or slippery surfaces, and pinch points, and gloves will be used, if necessary, to protect the hands.
- The feet will be placed far enough apart for good balance and stability.
- Personnel will ensure that solid footing is available prior to lifting the object.
- When lifting, get as close to the load as possible, bend the legs at the knees, making sure that the back is kept as straight as possible.
- To lift the object, the legs are straightened from their bending position.
- Never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting, with the back kept straight, the legs bent at the knees, and the object lowered.

- If the item to be lifted is too large, bulky, or heavy (over 50 pounds) for one person to safely lift, ask a co-worker for assistance. If a piece of material handling equipment is available that can do the job, the employee should use the equipment instead of trying to lift the object himself/herself.
- When two or more people are required to handle an object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each person, if possible, will face the direction in which the object is being carried.

#### 9.4 SPILL CONTAINMENT

Spills are not expected on this site. Hazardous materials, if necessary, will be brought to the site in small quantity containers. This will minimize the amount of material involved, should a spill occur, as well as reduce the amount of hazardous material on hand to the minimum amount consistent with efficient operations. If a small amount of liquid hazardous material is spilled, it will be cleaned up with absorbent material by site personnel wearing appropriate chemical resistant gloves. It will then be containerized, labeled, and sent for disposal at an approved facility.

#### 9.5 DRUM, CONTAINER, AND TANK HANDLING

PRI-USA JV does not anticipate the use of drums, containers, or tanks during activities under the SOW.

#### 9.6 COMPREHENSIVE ACTIVITY HAZARD ANALYSIS OF TREATMENT TECHNOLOGIES

Treatment technologies are not expected to be used on this project. When MEC is found on site, it will be blown in place in accordance with established procedures. Items that are unfuzed and determined acceptable to move by two fully qualified UXO Technicians, maybe consolidated to reduce the number of disposal shots.

#### 9.7 MATERIAL SAFETY DATA SHEETS

The Material Safety Data Sheets are located in Attachment 6.

#### 9.8 SUBCONTRACTOR CONTROL

See the "Subcontractors and Suppliers" section of the APP.

### 10.0 SITE CONTROL MEASURES

Site control measures are used to prevent or minimize the potential for site hazards. The site control measures as well as all requirements of this SHSP are mandatory for all PRI-USA JV personnel entering the EZ of this project site. Authorized government personnel will undergo the mobilization training along with all PRI-USA JV personnel, which includes a briefing in all of the requirements of this SHSP. All personnel receiving this training must sign a statement that they were trained and fully understand the requirements of this SHSP.

#### 10.1 SITE MAP

A site map (see Appendix B of the Munitions Removal Action Work Plan for detailed site maps) will be utilized by the UXOSO during the tailgate safety briefing to inform the workers of the location of

hazardous areas on the site, the assembly areas to be used in the event of site evacuation, and any other information relevant to the day's activities.

## 10.2 WORK ZONE DELINEATION AND ACCESS POINTS

Site work zones will be established by the Operations Manager prior to initiating operations to control site access. Establishment of site work zones is based upon site conditions, work activities, and exposure potentials. A site EZ will be set up, which includes the footprint of the area where work will take place and a 5,640 foot around that to protect areas outside the site from potential fragmentation. Within the EZ, operating teams will maintain a 200 foot MSD to protect the teams from each other's operations. Site work zones will be marked using barricades and signage closing roads into the area to unauthorized vehicular traffic. Barricades and signs will remain in place for the duration of site operations.

## 10.3 SITE ACCESS CONTROL

The UXOSO will control access to each work zone and will ensure that all site workers and visitors have received the proper training and medical surveillance required to enter a specific zone. Access will be denied to any potential entrant not meeting these requirements. The following work zones will be established at this site:

- Exclusion Zone (EZ) – Area where a significant hazard does or could occur and includes all areas where PPE is required to control worker exposure to chemical or physical hazards. All personnel entering the EZ will be logged in/out by the UXOSO. All visitors to the EZ must be escorted by a UXO Technician.
- Support Zone (SZ) – Area outside the EZ where site support activities are conducted. This zone includes break areas and sanitation facilities. Visitors desiring entry into the EZ must first meet with the UXOSO and receive the appropriate safety and emergency procedures briefing in the SZ before gaining admittance to the EZ. In addition, visitors will be escorted at all times by a UXO Technician while in the EZ.

Site access control will be implemented by PRI-USA JV and will be accomplished through a program that limits movement and activities of people and equipment at the project site. This control will be based on site-specific characteristics to include:

- Physical or explosive hazards;
- Terrain;
- Expected weather conditions;
- Planned site activities; and
- Site proximity to populated areas.

The degree of site access control will include the following:

- Controlled site ingress/egress points – Work area will be clearly visible to anyone approaching the site and vice versa. The main access road leading into the area will be closed and barricaded. Signs will be posted to warn unauthorized personnel against entry into the area. Anyone entering the work area must clear access through the project office. Only authorized personnel will be permitted within the EZ during MEC operations. All others will remain in the SZ.

- Worker/visitor registration – All personnel working on the site will sign in daily at the time of their daily safety briefing in the morning. All visitors to the site must sign the visitor log when they report to the site for their visitor briefing.
- Escort of visitors – All visitors to the site will be escorted by a UXO Technician. Visitors will be briefed on site hazards, PPE requirements, and emergency procedures. Visitors who are not UXO-qualified will not be permitted within the EZ during MEC operations. If visitors need to access the EZ, all MEC operations will cease while they are in the area, and the visitors will be escorted at all times.
- PPE requirements – PPE requirements have been established based on the site hazards. Personnel working in areas requiring PPE will wear required PPE for the duration of the operation. Visitors to the area will be required to have the required PPE for the area they will be visiting.

#### 10.4 ON-SITE AND OFF-SITE COMMUNICATION SYSTEM

On-site communication will be conducted by voice or hand signals. The project office will have telephone lines for off-site communication in the event of an emergency condition. Emergency communication will be conducted through the project office that will be occupied during working hours. Information concerning the emergency will be communicated from the field personnel using hand-held radio. Emergency telephone numbers and point of contacts will be posted in the project office.

#### 11.0 PERSONNEL HYGIENE AND DECONTAMINATION FACILITIES AND PROCEDURES

Sanitation facilities will be provided in the support zone area so that employees can wash prior to eating, drinking, smoking, or engaging in any other hand-to-face activities. Chemical toilets will be available in the support zone and throughout the work areas. As chemical contamination is not expected to be an issue at this site, basic washing of equipment and standard hygiene practices are the minimum requirements. Site sanitation will be established and maintained in accordance with OSHA 29 CFR 1910.120(n) and USACE EM 385-1-1, Section 2. In particular:

- Temporary toilet facilities will be provided in the vicinity of the work areas. Chemical toilets will be used in these locations and will be serviced every week. Each temporary toilet will be naturally lighted, have a toilet seat with a seat cover, have a urinal, have ventilation with vents screened, and be lockable from the inside. There will be at least one toilet for every 15 workers at the work site, as required.
- Hand and face washing facilities will be provided and will be utilized by all personnel exiting the EZ, prior to eating, drinking, tobacco use, or other hand-to-face activities. Paper towels will be provided for drying. A trash receptacle will be provided for discarded paper towels. In accordance with ANSI Z358.1-1998, eye-wash facilities will be available on all work sites where operations involve handling substances that could be hazardous to the eyes. An eyewash kit will also be located in each site vehicle.

General work practices include the following:

- Safe work practices will be implemented when possible to eliminate or reduce the potential for employee exposure.
- Employees will wash their hands immediately or as soon as feasible after removal of gloves or other PPE.

- Employees will wash hands and any other skin with soap and water, or flush mucous membranes with water immediately following contact with blood or potentially infectious materials.
- If potentially contaminated sharps are encountered, the item will immediately be disposed of in an appropriate container or decontaminated.
- Eating, drinking, smoking, applying cosmetics or lip balm, handling of contact lenses, or storage/handling of food are prohibited in all areas where potentially infectious materials are present.
- Equipment that has become contaminated will be decontaminated prior to servicing or storage, unless decontamination is not feasible, in which case the equipment will be disposed of properly.

## **12.0 EQUIPMENT DECONTAMINATION FACILITIES AND PROCEDURES**

Chemical contamination is not anticipated, basic washing of equipment is all that will be performed if required or deemed necessary by the site management personnel.

## **13.0 ON-SITE FIRST AID AND EMERGENCY PROCEDURES AND EQUIPMENT**

An approved emergency first aid kit, blood-borne pathogen kit, CPR mask, stretcher, blankets, eye wash kits, trauma supplies, and basic emergency equipment will be kept on site. Another first aid kit, blood-borne pathogens kit, CPR mask, and eye wash will be kept in each site vehicle. First aid kits are assigned by the USAE Safety Management Section and approved by the Occupational Health Physician. The UXOSO will be charged with providing regular inspections of the emergency supplies, replacing any items that are used, and maintaining readiness.

Portable eyewashes will be located in the site vehicles. A 5-pound ABC fire extinguisher will be kept in each site vehicle for emergency use on site. This equipment will be inspected on a weekly basis to assure it is maintained and ready to use. Any items used, or discovered defective, will be replaced immediately.

Fire extinguishers will be stored where they are well marked and readily accessible. Fire extinguishers shall be protected from the damaging effects of environmental elements. The UXOSO is responsible for ensuring that all fire extinguishers are visually inspected monthly and that these inspections are documented. All site personnel will be familiar with the locations of fire extinguishers and will be trained in their use.

## **14.0 EMERGENCY RESPONSE PLAN AND CONTINGENCY PROCEDURES**

The Emergency Response Plan and contingency procedures addresses emergencies that could occur during site operations, and outlines the appropriate response actions. This information can be found in "Emergency Response Plan and Contingency Procedures" under the "Plans, Programs and Procedures" Section of the APP.

## **15.0 EVACUATION PLAN**

In the event of an emergency requiring evacuation, the evacuation signal will be given as an alarm or through verbal instructions. Personnel will evacuate to Camp Garcia or a pre-determined evacuation point in the support zone. The UXOSO will account for all personnel and will summon emergency response personnel, if required. If the Fire Department is summoned, the UXOSO will meet them upon their entrance to the site and will inform them of the presence of MEC, and provide the appropriate fragmentation distance from the fire for the purpose of fighting or preventing the spread of fire from the site.

Potentially hazardous weather conditions will be closely monitored by the UXOSO. Heavy rains and high winds are not uncommon to Vieques Island during hurricane season. The UXOSO will determine if high wind or heavy rain conditions pose a hazard to site operations, in which case, personnel will evacuate to the pre-determined evacuation point and will wait for conditions to clear or for further instructions from the UXOSO.

In the event an emergency situation has been controlled and eliminated, the Project Manager, the Operations Manager, Senior UXO Supervisor (SUXOS), UXOSO, and CHSM will review the way the emergency was handled and change procedures if necessary.

After allowing the appropriate wait time (24 hours in the case of a fire), the SUXOS and the UXOSO will enter the site together and determine if the site is safe for re-entry. If MEC is encountered that may have been subjected to extreme temperatures in a fire, that MEC will be blown in place prior to allowing re-entry into the site.

## **16.0 LOGS, REPORTS, AND RECORD KEEPING**

See the "Logs, Reports and Record Keeping" section of the APP.

## **17.0 ON-SITE WORK PLANS**

The approved Work Plans will be maintained on site by the Operations Manager. This is inclusive of the APP/SHSP, the Explosive Safety Submission, and the Quality Control Plan (included as part of the Work Plan). These plans will be fully implemented for the duration of site operations. If new hazards are encountered that are not fully addressed within these documents, the documents will be amended in accordance to the requirements of Department of Defense (DOD) STD 6055.9 and will be sent for approval through the same appropriate channels that approved the original plans.

## **18.0 COMMUNICATION PROCEDURES**

On-site communication will be verbal, or performed by hand held radios, depending on the proximity of the groups. There may also be an alarm signal used for the purposes of site evacuation.

Off-site communication will be via telephone. It is the intention of PRI-USA JV to maintain contact with the Hospital and the Fire Department the U.S. Navy, or designated representative, so that both are aware of the activities taking place and will be aware of the procedures to follow should their services be needed during the course of site operations.

## **19.0 SPILL CONTAINMENT PROCEDURES**

Small quantity containers of chemicals will be used at the work site, which will minimize the amount of hazardous materials that could potentially become part of a spill should an accident occur. The majority of chemicals used will include oils and lubricants for use in vegetation clearance equipment. Spill clean-up kits will be available for use to clean up these chemicals and the impacted soils in the event a spill occurs. Chemical resistant gloves will be used during all cleanup activities. The spilled chemical and the contaminated soil will be cleaned up, placed in labeled plastic bags, and stored in drums or other secured location until such time as they can be removed from the site and sent to a certified disposition facility.

## **20.0 CONFINED SPACE PROCEDURES**

Due to the nature of this SOW, confined spaces are not expected to be an issue on this site.

## **21.0 FIRE PROTECTION REQUIREMENTS**

Through appropriate use and storage of flammable products, PRI-USA JV intends to prevent fires as much as feasible during operations on this site. Should a fire occur, all site teams will have at least one ABC fire extinguisher with them during the course of operations. Fire extinguishers are the first line of defense should a fire start in this remote location. Personnel will be trained in the use of fire extinguishers and they will be instructed to try to fight a fire only in the incipient stages. If the fire is too large to fight, personnel will evacuate the site and the appropriate person will call in the Fire Department, who will stand no closer than fragmentation distance from the fire to fight or prevent spreading of the fire. If it is possible to safely do so, all flammable and/or combustible materials will be removed from the path of the fire.

After the fire has been extinguished, the area will be closely monitored by the UXOSO for a period of at least 1 hour for a small fire, to assure that re-ignition does not occur. For larger fires or explosions, a wait time of 24 hours will be given after the fire has been extinguished before anyone would be permitted to gain access to the site. At that point, the SUXOS and the UXOSO would enter the site together. If MEC is observed, it will be considered to be unstable due to exposure to extreme heat. The MEC will be blown in place. After all visible MEC has been disposed of, it is considered safe for other personnel to enter the site for the purposes of site investigations. All personnel entering the site who are not UXO-qualified will be escorted by a UXO-qualified person for the duration of the site visit. If MEC is encountered while non UXO-qualified personnel are visiting the site, they will be removed from the site until the MEC can be blown in place and the site can be made safe for re-entry.

## **22.0 INCIDENT REPORTING REQUIREMENTS**

Should an accident or mishap occur on the site, regardless of the severity, it will be fully investigated by PRI-USA JV and all reports and records will be documented on the Accident Report Form and the Contractor Significant Incident Report (CSIR-1). Copies will be maintained on site for the duration of site activities. A permanent copy will be maintained in the respective company's Corporate Office. Accidents/incidents shall be reported in accordance with EM 385-1-1. All accident/incident reports will be reviewed by the CHSM to assure all root causes of the accident/incident have been adequately addressed in order to prevent future recurrences on this or any other project sites.

The Operations Manager will notify the Navy technical representative immediately and fill out and submit the CSIR-1 form to the Contracting Officer or designated representative for review within one working day after the event

Any accident involving a fatality of three or more hospitalizations from the same incident will be reported telephonically to the nearest OSHA Area office within 24 hours by the CHSM. If all information is not known at that time, an initial report will be made and a follow-up report will be submitted after all of the facts are documented.

## **23.0 REFERENCES**

CH2MHILL, 2005. *Time Critical Removal Action/Interim Measures Work Plan, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico*. March 2005.

DOD 6055.9-STD, Ammunition and Explosive Safety Standards.



Occupational Safety and Health Administration (OSHA) 1994 General Industry Standards, 29 CFR 1910 and Construction Industry Standards, 29 CFR 1926; especially 1910.120/29CFR 1926.65-Hazardous Waste Site Operations and Emergency Response.

U.S. Army Corps of Engineers, 2003. Safety and Health Requirements Manual. Engineer Manual 385-1-1. 03 November 2003.

**APPENDIX D - ATTACHMENT 5**

**D-5.0 DRUG FREE WORK PLACE PROGRAM**

This attachment contains the Drug Free Work Place Program for the Munitions Removal Action at the LIA, located on Vieques, Puerto Rico.

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## **DRUG FREE WORK PLACE PROGRAM**

June 1, 2005

The USA Environmental, Inc. program is an extension of our work safety and employee health programs. The program requires refraining from substance abuse both on and off the job as a condition of continued employment.

### **WHAT IS SUBSTANCE ABUSE**

Federal Acquisition Regulation Clause 23.500 defines substance abuse as the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in the workplace. USA Environmental's program further expands that definition as follows: Substance abuse includes but is not limited to the consumption, by any means, of any legal or illegal substance that alters an individual's normal behavior and results in intoxication and/or renders the employee incapable of safe/efficient job performance. Substance abuse also includes over use or abuse of legally prescribed drugs. Also prohibited are the selling, trading, giving away, possession or offering for sale illegal drugs, prescription drugs, or alcohol whether on company property, while operating a company vehicle (on or off company property), or operating a personal vehicle while on company business.

### **USA ENVIRONMENTAL SUBSTANCE ABUSE TESTING PROGRAM**

The substance abuse program includes substance abuse testing under the following situations:

1. Pre-employment testing.
2. Testing for reasonable suspicion of substance abuse.
3. Testing following on-the-job accidents.
4. Testing as part of all "fitness for duty" medical examinations.
5. Quarterly testing for a period of 2 years after program completion for all employees participating in a substance abuse rehabilitation program.
6. Random testing of employees to promote abstinence.
7. Testing following a 30-day or greater lay off or return to work following a leave of absence.

A urine, saliva or blood specimen will be analyzed for the presence of any of the following substances:

1. Alcohol - Ethyl alcohol as a beverage or as part of a medication
2. Marijuana - Cannabinoids, THC
3. Cocaine
4. Methadone - Dolophine, Methadose
5. Barbiturates - Nembutal, Tuinal, Seconal, etc.
6. Amphetamines - Desoxyn, Biphedamine, Dexedrine, etc.
7. Methaqualone - Qualudes
8. Opiates - Codeine, Percodan, Paregoric, Morphine, etc

## Drug Free Work Place Program Page 2

9. Propoxyphene - Darvon, Dolene, etc.
10. Phencyclidine - (PCP)
11. Benzodiazepines - Librium, Valium, Xanax, Serax, Halcion, etc.

A list of the most common drugs or medication by brand name, common name, as well as chemical name, which may alter or affect a drug test will be provided to all job applicants and employees at the time of testing.

A form is provided for employees or job applicants to report, voluntarily and confidentially, the use of prescription or non-prescription medications both before and after being tested.

Specific confirmation testing will be performed for all positive screening test results. Employees testing positive for prescription drugs that are commonly abused must produce evidence from their attending physician to justify the treatment necessity for use of the drug(s).

USA Environmental is responsible for testing costs, except for test costs incurred by the employee or job applicant challenging test results.

### **RANDOM TESTING**

Unless prohibited by law, USA reserves the right to randomly test its employees for substance abuse. The number of personnel tested and the frequency of tests will be solely at the discretion of USA or as contractually specified by USA's clients.

### **REASONABLE SUSPICION TESTING**

Employees reporting to work or a USA Environmental job site who demonstrate impaired conduct will be interviewed by two (2) supervisors or managers to determine the cause of the irregular behavior.

If both supervisors conclude that the irregular behavior is unsafe, the employee will not be allowed to continue working and will be transported home or to a medical facility. The employee will not be allowed to drive any motor vehicle. If a medical problem is not the cause, the employee may be tested for substance abuse. The employee may also be tested for substance abuse regardless of the cause of irregular behavior.

Reasonable suspicion testing shall also be conducted when there is:

1. An independently corroborated report of observed substance abuse.
2. Evidence that an individual tampered with a drug test during his or her employment with USA Environmental.
3. Information that an employee caused or contributed to an accident while at work.
4. Evidence that an employee has used, possessed, sold, solicited, or transferred drugs while working on USA Environmental premises or while operating vehicles, machinery or equipment belonging to USA Environmental.

Supervisors will complete an incident report for observed irregular conduct, documenting their observations and the results of the employee interview. Final disposition of the incident will be documented with signatures and the dates listed by both supervisors.

A copy of the supervisor's report will be provided to the employee, with appropriate employee's signature of receipt.

This confidential Incident Report will be retained by USA Environmental for a period of at least one (1) year.

## **CONSEQUENCES OF POSITIVE TEST OR TEST REFUSAL**

Refusal or failure to submit to testing or positive test results following an on-the-job injury disqualifies an employee from Workers' Compensation benefits.

Testing positive for abused substances will eliminate applicants from employment consideration.

Any employee may be terminated from employment for a positive test result. Refusal or failure to submit to testing following an on-the-job accident will result in termination of employment.

Any employee who is given a "second chance" must seek treatment. Time away from work for treatment will be in a leave without pay status. The USA Environmental Employee Assistance Program (EAP) will coordinate the employee's treatment plan. If the employee is enrolled in the employee health benefit plan or another medical plan, it may provide benefits to help pay for this treatment.

A second positive test for abused substances will result in termination.

## **OTHER GROUNDS FOR TERMINATION**

An employee bringing onto the USA Environmental premises or job sites; having possession of; being under the influence of; possessing in the employee's body, blood or urine (at levels exceeding or equal to established cut-off levels, 38F-9.007 (4)); or using, consuming, transporting, selling or attempting to sell, giving away any illegal drugs (including prescription drugs illegally obtained or prescribed for the individual only), or alcohol, at any time is guilty of misconduct and is subject to discipline to include discharge, suspension without pay or other actions even for a first offense.

## **RIGHT TO INSPECT**

USA Environmental reserves the right to inspect the property and person of individuals suspected of illegal drug or alcohol possession while on company property or at company job sites. This right includes, but is not limited to, the inspection of vehicles, parcels, packages, purses, lunchboxes, briefcases, lockers, work stations and desks. In addition, the company reserves the right to access all computer files, e-mail and voice mail systems that any employee utilizes at the workplace.

## **CHALLENGING TEST RESULTS**

An employee may challenge a confirmed positive test by submitting an explanation in writing to the Human Resources Department, concerning personal circumstances that might have affected test results. This challenge must be submitted within 5 working days following the employee notification of a confirmed positive test result. The donor of a tested specimen will be responsible for providing all necessary documentation, i.e., a doctor's report, signed prescription or current prescription container with relevant information and other related supporting documents.

USA Environmental will, within 15 days of receipt of the employee's written explanation or challenge of positive test results, provide a written explanation to the employee as to whether, and if so, why, the employee's explanation is unsatisfactory, along with a copy of the positive test results.

The employee or job applicant desiring to challenge a test result will be responsible for notifying the original testing laboratory of an alternate HRS licensed laboratory, for the purpose of transferring, under Chain of Custody, a portion of the employee's or job applicant's specimen for re-testing. The employee may have a portion of their original specimen re-tested during a period of 180 days following written notice of a positive test result. When an employee undertakes a challenge to the result of a test, it shall be the employee's responsibility to notify the laboratory and the sample shall be retained by the laboratory until the matter is settled.

In the case of a denial of a workers' compensation claim, an employee may undertake an administrative challenge by filing a claim for benefits with a judge of Compensation Claims, concerning workplace injury. Other challenges not involving workplace injuries must challenge a test result in a court of competent jurisdiction.

Employees or job applicants may call the testing laboratory for technical information regarding prescription or non-prescription medications that may affect test results.

Employees and job applicants may report, in confidence, to the Personnel or Human Resource Manager, the use of prescription or non-prescription medications that may affect job performance or testing results, either before or after testing.

Job applicants or employees whose drug test results are confirmed positive shall not by virtue of the result alone, be defined as having a "handicap" under the Americans with Disabilities Act.

## **GETTING HELP**

Employees who require a treatment program will be referred to USA Environmental's Employee Assistance Program (EAP) with CIGNA Behavioral Health at 1-888-371-1125.

Employees may inspect this program file and/or receive more information on the program on a confidential basis, in the USA Environmental business office, during normal hours of operation.

**REQUIREMENT TO NOTIFY USA OF CONVICTION**

Any employee convicted of a violation of a criminal drug statute for a violation occurring in the workplace must notify USA Environmental, Inc., Attention: Human Resource Department, within 5 calendar days of the conviction. This notification must be in writing.


**CONFIDENTIALITY OF INFORMATION**

All drug test information, reasonable suspicion reports, or other related information concerning an employee or applicant will remain confidential and will not be disclosed except under conditions required by law.

Release of such information under any circumstances, other than those required by law, will be solely pursuant to a written consent voluntarily signed by the person tested. The consent duration and precise information to be disclosed will be stated,

**GOVERNMENTAL COMPLIANCE**

This Drug Free Work Place Program is implemented pursuant to the requirements of Florida Statute 440.102 and Administrative Rules 38F-9-001 through 38F-9.014 of the Florida Department of Labor and Employment Security, Division of Workers' Compensation, and 48 CFR 23.500 (Federal Acquisition Regulation 23.500).



Robin Miller  
Human Resources Director

## APPENDIX D - ATTACHMENT 6

### D-6.0 MATERIAL SAFETY DATA SHEETS

This attachment contains the following material safety data sheets applicable to site operations for the Munitions Removal Action at the LIA:

- Anti-Freeze
- Cast Boosters PETN
- Deep Woods Off
- Detonating Cord
- Electric/Non-Electric Detonators
- Fire Extinguishers
- Hydraulic Fluid
- Insect Repellent
- Shape Charge
- Unleaded Gasoline

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**MSDS**  
**ANTI-FREEZE**



\*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER: 897945  
PRODUCT NAME(S): ETH. GLYCOL(MEG)  
OFFSPEC  
PRODUCT IDENTIFICATION: PRODUCT  
CODE R00000024044  
DATE OF MSDS: 1994-10-21  
EMERGENCY TELEPHONE NO. :  
800-964-8861 (SUN COMPANY, AFTER  
NORMAL BUSINESS HOURS) 800-424-9300  
(CHEMTREC, AFTER NORMAL BUSINESS  
HOURS)

\*\*\* MATERIAL SAFETY DATA \*\*\*

1. CHEMICAL PRODUCT AND COMPANY  
INFORMATION

REVISION DATE: 10/21/1994

UN NUMBER- N/A

PRIMARY APPLICATION- ANTIFREEZE,  
SOLVENT.

SYNONYMS: MONOETHYLENE GLYCOL;  
ETHYLENE ALCOHOL

CAS REGISTRY NO: 107-21-1

CAS NAME..... : 1,2-ETHANEDIOL

CHEMICAL FAMILY: GLYCOL

EMERGENCY PHONE NUMBERS (AFTER  
NORMAL BUSINESS HOURS)

SUN CO.. 1-800-964-8861

CHEMTREC. 1-800-424-9300

2. COMPOSITION / INFORMATION ON  
INGREDIENTS

EXPOSURE GUIDELINES

OSHA                      ACGIH

SUN/MFR

COMPONENT/CAS NO.	LO%	HI%
TWA STEL	TWA STEL	TWA STEL
UNIT		

LIMITS FOR THE PRODUCT:

CEILING LIMIT - 50 PPM

ETHYLENE GLYCOL 107-21-1    99.00 100.0

CEILING LIMIT - 50 PPM

ADDITIONAL                      EXPOSURE                      LIMITS

GOVERNMENT REGULATION

OTHER LIMIT- OSHA/ACGIH CEILING:  
50PPM; 125MG/M3.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING] HARMFUL IF INHALED. MAY  
CAUSE RESPIRATORY TRACT IRRITATION.

INHALATION

CAUSES EYE IRRITATION. HARMFUL OR  
FATAL IF SWALLOWED. CAN CAUSE  
SEVERE CHRONIC TOXICITY.

APPEARANCE-- COLORLESS      LIQUID  
ODOR-- SLIGHTLY SWEET

POTENTIAL HEALTH EFFECTS

PRIMARY ROUTES OF ENTRY-  
INHALATION( X ) SKIN( X ) EYE( X )  
INGESTION( X )

INHALATION

EXCESSIVE EXPOSURES MAY CAUSE  
IRRITATION TO EYES, NOSE, THROAT AND  
LUNGS. IRRITATION TO RESPIRATORY  
TRACT; CENTRAL NERVOUS SYSTEM  
(BRAIN)

EFFECTS; DISCOMFORT, DISAGREEABLE  
ODOR, NAUSEA. REPEATED EXCESSIVE  
EXPOSURES MAY CAUSE LIVER EFFECTS  
OR DAMAGE. KIDNEY EFFECTS OR  
DAMAGE.

CHRONIC, ADVERSE SYSTEMIC EFFECTS.

SKIN

SKIN ABSORPTION OF MATERIAL MAY  
PRODUCE SYSTEMIC TOXICITY. CONTAINS  
A MATERIAL WHICH MAY CAUSE  
IRRITATION WITH PROLONGED OR  
REPEATED CONTACT.

EYE

CONTACT WITH THE EYE MAY CAUSE  
IRRITATION.

INGESTION

HARMFUL OR FATAL IF SWALLOWED.  
INGESTION OF THIS MATERIAL MAY  
CAUSE ABDOMINAL PAIN; CENTRAL  
NERVOUS SYSTEM (BRAIN) EFFECTS;  
DIFFICULTY IN BREATHING;  
RESPIRATORY FAILURE; AND DEATH.  
INGESTION OF THIS MATERIAL MAY  
CAUSE DAMAGE TO KIDNEYS;  
CARCINOGEN LISTED BY-IARC(NO)  
NTP(NO)      OSHA(NO)      ACGIH(NO)  
OTHER(NO)

PRE-EXISTING MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE-

DISORDERS OR DISEASES OF THE SKIN,  
EYE, KIDNEY, LIVER.

4. FIRST AID MEASURES

MOVE PERSON TO FRESH AIR. IF NOT

**MSDS**  
**ANTI-FREEZE**



BREATHING, GIVE ARTIFICIAL  
RESPIRATION,  
OBTAIN MEDICAL ASSISTANCE.

SKIN

WASH WITH SOAP AND WATER UNTIL NO  
ODOR REMAINS. IF REDNESS OR  
SWELLING DEVELOPS, OBTAIN MEDICAL  
FLUSH WITH WATER FOR AT LEAST 15  
MINUTES. IF IRRITATION PERSISTS,  
OBTAIN MEDICAL ASSISTANCE.

INGESTION

GIVE LIQUIDS AND INDUCE VOMITING  
UNLESS VICTIM IS UNCONSCIOUS. OBTAIN  
EMERGENCY MEDICAL ATTENTION.  
SMALL AMOUNTS WHICH ACCIDENTALLY  
ENTER MOUTH SHOULD BE RINSED OUT  
UNTIL TASTE OF IT IS GONE.

5. FIRE FIGHTING MEASURES

FLASH POINT: 245 CLOSED CUP (DEG. F);  
111 CLOSED CUP (DEG. C)

AUTOIGNITION TEMP.: 748 (DEG. F); 398  
(DEG. C)

---FLAMMABLE LIMITS IN AIR---

LOWER EXPLOSIVE LIMIT (LEL): 3.2 %  
VOLUME

UPPER EXPLOSIVE LIMIT (UEL):  
ESTIMATED @ 15.3 % VOLUME

FIRE AND EXPLOSION HAZARDS

CAN BE MADE TO BURN (FLASH POINT  
GREATER THAN 200F).

EXTINGUISHING-MEDIA

WATER SPRAY. ALCOHOL RESISTANT  
FOAM. DRY CHEMICAL. CARBON DIOXIDE.

SPECIAL FIRE FIGHTING INSTRUCTIONS

USE WATER SPRAY. COOL TANK/  
CONTAINER. WEAR SELF-CONTAINED  
BREATHING APPARATUS. WEAR  
STRUCTURAL FIREFIGHTERS PROTECTIVE  
CLOTHING.

NFPA/HMIS

CLASSIFICATION

HAZARD RATING

HEALTH - 1 / 1 0=LEAST 1=SLIGHT

FIRE - 1 / 1 2=MODERATE 3=HIGH

REACTIVITY - 0 / 0 4=EXTREME

PERSONAL PROTECTION INDEX - X

SPECIFIC HAZARD: NONE LISTED.

6. ACCIDENTAL RELEASE MEASURES

CONTAIN SPILL. FOR LARGE SPILL, LEAK  
OR RELEASE. USE PERSONAL PROTECTIVE

ASSISTANCE. OBTAIN MEDICAL  
ATTENTION.

IMMEDIATELY REMOVE SOAKED  
CLOTHING. WASH CLOTHING BEFORE  
REUSE.

EYE

EQUIPMENT STATED IN SECTION 8.  
ADVISE EPA; STATE AGENCY IF  
REQUIRED. ABSORB ON INERT MATERIAL.  
SHOVEL, SWEEP OR VACUUM SPILL.  
FLUSH WITH WATER AND REMOVE  
CONTAMINATED ARTICLES.

7. HANDLING AND STORAGE

KEEP IN COOL, DRY PLACE. KEEP IN WELL  
VENTILATED SPACE. STORAGE HAS  
TEMPERATURE LIMITS--SEE STABILITY.  
NFPA CLASS IIIB STORAGE. CONSULT  
NFPA AND OSHA CODES. AVOID  
PROLONGED BREATHING OF MIST OR  
VAPOR. AVOID PROLONGED OR REPEATED  
CONTACT WITH SKIN. WASH  
THOROUGHLY AFTER HANDLING.

8. EXPOSURE CONTROL / PERSONAL  
PROTECTION

CONSULT WITH A HEALTH/SAFETY  
PROFESSIONAL FOR SPECIFIC SELECTION.

VENTILATION

VENTILATE AS NEEDED TO COMPLY WITH  
EXPOSURE LIMIT. LOCAL EXHAUST

VENTILATION RECOMMENDED.

MECHANICAL VENTILATION

RECOMMENDED.

PERSONAL PROTECTIVE EQUIPMENT

EYE

SPLASH PROOF CHEMICAL GOGGLES  
RECOMMENDED TO PROTECT AGAINST  
SPLASH OF PRODUCT.

GLOVES

PROTECTIVE GLOVES RECOMMENDED  
WHEN PROLONGED SKIN CONTACT  
CANNOT BE AVOIDED. POLYETHYLENE;  
NEOPRENE; NITRILE; POLYVINYL  
ALCOHOL; NATURAL RUBBER; BUTYL  
RUBBER;

RESPIRATOR

CONCENTRATION-IN-AIR DETERMINES  
PROTECTION NEEDED. USE ONLY NIOSH  
CERTIFIED RESPIRATORY PROTECTION.

# MSDS

## ANTI-FREEZE



RESPIRATORY PROTECTION USUALLY NOT NEEDED UNLESS PRODUCT IS HEATED OR MISTED. HALF-MASK AIR PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGES IS ACCEPTABLE TO 10 TIMES THE EXPOSURE LIMIT. FULL-FACE AIR PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGES IS ACCEPTABLE TO 50 TIMES THE EXPOSURE LIMIT NOT TO EXCEED THE CARTRIDGE LIMIT OF 1000 PPM. PROTECTION BY AIR PURIFYING RESPIRATORS IS LIMITED. USE A POSITIVE PRESSURE-DEMAND FULL-FACE SUPPLIED AIR RESPIRATOR OR SCBA FOR EXPOSURES ABOVE 50X THE POLYETHYLENE; POLYVINYL ALCOHOL(PVA); NEOPRENE; NITRILE; NATURAL RUBBER; LAUNDER SOILED CLOTHES. FOR NON-FIRE EMERGENCIES RESPIRATORY PROTECTION MAY BE NECESSARY AND WEAR APPROPRIATE PROTECTIVE CLOTHING TO AVOID CONTACT.

9. PHYSICAL AND CHEMICAL PROPERTIES  
BOILING POINT..... : 388 (DEG. F) \_\_\_\_\_ 198 (DEG. C)

MELTING POINT..... : 9 (DEG. F) \_\_\_\_\_ MINUS 13.3 (DEG. C)

SPECIFIC GRAVITY... : 1.1 (WATER=1)

PACKING DENSITY.... : N/A (KG/M3)

VAPOR PRESSURE..... : 0.08 (MM HG @ 20 DEG C)

VAPOR DENSITY..... : 2.1 (AIR=1)

SOLUBILITY IN WATER.: COMPLETE (% BY VOLUME)

PH INFORMATION..... : N/A AT CONC. N/A G/L H2O

% VOLATILES BY VOL...: N.D.

EVAPORATION RATE... : 1000X SLOWER (ETHYL ETHER=1)

OCTANOL/WATER COEFF.: N.D.

APPEARANCE..... : COLORLESS LIQUID

ODOR..... : SLIGHTLY SWEET

ODOR THRESHOLD..... : N.D. (PPM)

VISCOSITY..... : N.D. SUS @ N.D DEG F ... N.D. CST @ N.D DEG C

MOLECULAR WEIGHT... : N.D. (G/MOLE)

10. STABILITY AND REACTIVITY

STABILITY

EXPOSURE LIMIT. IF EXPOSURE IS ABOVE IDLH(IMMEDIATELY DANGEROUS TO LIFE & HEALTH) OR THERE IS THE POSSIBILITY OF AN UNCONTROLLED RELEASE OR EXPOSURE LEVELS ARE UNKNOWN THEN USE A POSITIVE PRESSURE-DEMAND FULL-FACE SUPPLIED AIR RESPIRATOR WITH ESCAPE BOTTLE OR SCBA. IMPORTANT SUPPLEMENTAL INSTRUCTION OR INFORMATION FOR PROPER RESPIRATORY PROTECTION IS CONTAINED IN SECTION 16.

### OTHER

IF CONTACT IS UNAVOIDABLE, WEAR CHEMICAL RESISTANT CLOTHING.

STABLE.

CONDITIONS TO AVOID-

EXTREME HEAT WILL IGNITE IN AIR AT 748F. DO NOT STORE AT TEMPERATURES ABOVE 120F (60C).

INCOMPATIBLE MATERIALS

STRONG OXIDIZING CHEMICALS. REACTS VIOLENTLY WITH CHLOROSULFONIC ACIDOLEUM, SULFURIC ACID, STRONG BASES.

HAZARDOUS DECOMPOSITION

CARBON MONOXIDE AND ASPHYXIANTS ARE PRODUCED BY BURNING.

POLYMERIZATION WILL NOT OCCUR.

11. TOXICOLOGICAL INFORMATION  
FOR THE PRODUCT

INHALATION: OVEREXPOSURE TO MIST OR VAPORS MAY CAUSE EYE, NOSE, THROAT

AND RESPIRATORY TRACT IRRITATION, CNS (BRAIN) EFFECTS, DIZZINESS, DRUNKENESS, INCOORDINATION, COMA, RESPIRATORY FAILURE, OR DEATH.

EXCESSIVE EXPOSURES MAY CAUSE BRAIN, LIVER, AND/OR KIDNEY EFFECTS AND DAMAGE.

SKIN & EYE: LARGE ACUTE EXPOSURE MAY CAUSE SYSTEMIC EFFECTS. IRRITANT ON CONTACT.

INGESTION: TOXIC] HARMFUL OR FATAL IF SWALLOWED. ACUTE POISONING (AS LITTLE AS 100 ML IN HUMANS) CHARACTERIZED BY GI PAIN, NAUSEA, VOMITING, MUSCLE TENDERNESS, CNS

**MSDS**  
**ANTI-FREEZE**



DEPRESSION, POSSIBLE RESPIRATORY AND RENAL FAILURE, DEATH. IN LAB ANIMALS BY ORAL AND INHALATION EXPOSURE EMBRYOTOXICITY & TERATOGENICITY WERE REPORTED.

ETHYLENE GLYCOL (COMPONENT)

INHALATION: OVEREXPOSURE TO MIST OR VAPORS GENERATED BY HEATING MAY

CAUSE EYE, NOSE, THROAT, & RESPIRATORY IRRITATION, CNS (BRAIN) EFFECTS & DIZZINESS. EXCESSIVE PROLONGED EXPOSURES MAY CAUSE KIDNEY, LIVER, BLOOD, BRAIN EFFECTS OR DAMAGE. SKIN & EYE: LARGE ACUTE EXPOSURE MAY CAUSE SYSTEMIC TOXICITY. IRRITANT ON CONTACT. ORAL: TOXIC] HARMFUL OR FATAL IF SWALLOWED. ACUTE POISONING (AS LITTLE AS 100 ML IN HUMANS) CHARACTERIZED BY GI PAIN, NAUSEA, VOMITING, MUSCLE SPASMS, CONVULSIONS & CNS DEPRESSION, POSSIBLE RENAL AND RESPIRATORY

**14. TRANSPORTATION INFORMATION**

DOT- PROPER SHIPPING NAME- ETHYLENE GLYCOL (ANTIFREEZE)

HAZARD CLASS- NOT REGULATED

IDENTIFICATION NUMBER- NOT REGULATED

LABEL REQUIRED- NOT REGULATED

IMDG- PROPER SHIPPING NAME- NOT AVAILABLE

IATA- PROPER SHIPPING NAME- NOT AVAILABLE

**15. REGULATORY INFORMATION**

SARA 302 THRESHOLD PLANNING QUANTITY. N/A

SARA 304 REPORTABLE QUANTITY ..... N/A

SARA 311 CATEGORIES- IMMEDIATE (ACUTE) HEALTH EFFECTS.. Y  
DELAYED (CHRONIC) HEALTH EFFECTS.. Y  
FIRE HAZARD ..... N

SUDDEN RELEASE OF PRESSURE HAZARD. N

REACTIVITY HAZARD ..... N

WHEN A PRODUCT AND/OR COMPONENT IS LISTED BELOW, THE REGULATORY

FAILURE, DEATH. IN LAB ANIMALS BY ORAL & INHALATION EXPOSURE FETAL TOXICITY AND BIRTH DEFECTS WERE REPORTED.

**12. ECOLOGICAL INFORMATION**

AQUATIC TOXICITY

TLM96 ( CONCENTRATION IN WATER THAT KILLS 50% OF EXPOSED ORGANISMS ) IS

IN THE RANGE OF 100 TO 1000 PPM. LC50 (24 HRS.) TO GOLDFISH: >5,000 MG/L  
THE TOXICITY THRESHOLD FOR SCENDESMUS QUADRICAUDA (GREEN ALGAE) TO ETHYLENE GLYCOL IS >10,000 MG/L.

**13. DISPOSAL CONSIDERATIONS**

FOLLOW FEDERAL, STATE AND LOCAL REGULATIONS. NOT A RCRA HAZARDOUS WASTE IF UNCONTAMINATED. DO NOT FLUSH TO DRAIN/ STORM SEWER. CONTRACT TO AUTHORIZED DISPOSAL SERVICE.

LIST ON WHICH IT APPEARS IS INDICATED. FOR THE PRODUCT - MA NJ PA RI 01

ETHYLENE GLYCOL - CA FL MA MN NJ PA RI 01

01=SARA 313 02=SARA 302/304

03=IARC CARCINOGEN 04=OSHA

CARCINOGEN 05=ACGIH CARCINOGEN

06=NTP CARCINOGEN 07=CERCLA 302.4

08=WHMIS CONTROLLED PROD.

10=OTHER CARCINOGEN

PA=PENNSYLVANIA RTK NJ=NEW

JERSEY RTK CA=CALIFORNIA PROP 65

MA=MASSACHUSETTS RTK

MI=MICHIGAN 406 MN=MINNESOTA RTK

FL=FLORIDA RI=RHODE ISLAND

IL=ILLINOIS NY=NEW YORK

WV=WEST VIRGINIA

CT=CONNECTICUT LA=LOUISIANA

ME=MAINE OH=OHIO

THIS PRODUCT OR ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE U.S. TSCA INVENTORY.

**16. OTHER INFORMATION**

ETHYLENE GLYCOL IS TOXIC BY INGESTION AND DETAILS ON BODILY

**MSDS**  
**ANTI-FREEZE**



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EFFECTS AND FIRST AID TREATMENT CAN BE FOUND IN "CLINICAL TOXICOLOGY OF COMMERCIAL PRODUCTS" BY GOSSELIN, HODGE, SMITH AND GLEASON. WILLIAMS & WILKINS PUB.

WARNING] HARMFUL OR FATAL IF SWALLOWED. DO NOT DRINK ETHYLENE GLYCOL OR SOLUTION. IF SWALLOWED AND IF CONSCIOUS, INDUCE VOMITING. CALL FOR MEDICAL HELP IMMEDIATELY. NON-FATAL DOSES CAN PRODUCE KIDNEY, LIVER, AND OTHER SYSTEMIC DAMAGE. HAS PRODUCED BIRTH DEFECTS IN LABORATORY ANIMAL STUDIES. MINIMIZE EXPOSURE TO MISTS, VAPORS AND FUMES. IN CASE OF EYE CONTACT, FLUSH WITH WATER FOR AT LEAST 15 MINUTES. WASH THOROUGHLY AFTER HANDLING. DO NOT STORE IN OPEN OR UNLABELED CONTAINERS. KEEP OUT OF REACH OF CHILDREN AND ANIMALS. SHELF LIFE LIMITATIONS: 6 MONTHS IN DRUMS OR 12 MONTHS IN BULK.

RESPIRATOR: IF GENERATED AS MIST AT <250 MG/CUBIC METER THEN USE DUST/ MIST FILTER OVER CARTRIDGES STATED IN SECTION 8.





# MATERIAL SAFETY DATA SHEET

## CAST BOOSTERS

DATE SEPTEMBER 1998

MSDS NO. P-1

PAGE 1 of 2

### SECTION I

Issued by the Safety and Compliance Dept.

AUSTIN POWDER COMPANY  
25800 SCIENCE PARK DRIVE  
CLEVELAND, OHIO 44122  
EMERGENCY PHONE  
DAY 216-464-2400  
NIGHT 216-464-2407

#### TRADE NAME AND SYNONYMS

ACP Boosters: Orange Cap, Red Cap, Black Cap, Brown Cap  
Green Cap, Purple Cap, White Cap, Gray Cap, etc.  
NDS Boosters, ADP Boosters, Gold Nugget, Silver Nugget,  
Diamond Nugget, DES SERIES, DES Pentolite Charges, Rock  
Crushers, 90 Gram, 150 Gram, DES Shaped Charges, Prime Gel\*,  
Renforcauers, HDP 150, HDP 400, HDP 400LP, HDP 450,  
Doubledet and Ringprime

### SECTION II HAZARDOUS INGREDIENTS

Formulated with TNT and an explosive sensitizer such as PETN, RDX and/or HMX.

TNT, Trinitrotoluene, $C_7H_5N_3O_6$	CAS No. 118-96-7	30% to 80% TNT
PETN, Pentaerythritol tetranitrate, $C_5H_8N_4O_{12}$	CAS No. 78-11-5	20% to 70% PETN, RDX, and/or HMX.
HMX, Cyclotetramethylene tetranitramine, Octogen, $C_4H_8N_8O_8$	CAS No. 261-41-0	
RDX, Cyclotrimethylene trinitramine, Cyclonite, $C_3H_6N_6O_6$	CAS No. 121-82-4	
Aluminum, AL	CAS No. 7429-90-5	0% to 20% Aluminum
Pentolite is a 50/50 mixture of PETN and TNT.	CAS No. 8066-33-9	

### SECTION III PHYSICAL DATA

BOILING POINT	Decomposes	VAPOR PRESSURE (mm Hg)	Negligible at 20°C
SPECIFIC GRAVITY ( $H_2O = 1$ )	1.65	VAPOR DENSITY (Air = 1)	N/A
PERCENT VOLATILE BY VOL. (%)	N/A	EVAPORATION RATE:	N/A
SOLUBILITY IN WATER:	0.15%		

APPEARANCE AND ODOR: Solid yellow-buff cast crystalline material. No odor.

### SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT:	N/A
FLAMMABLE LIMITS:	N/A
EXTINGUISHING MEDIA:	See below
SPECIAL FIRE FIGHTING PROCEDURES:	Do not fight fires. Withdraw personnel immediately. Allow fire to burn itself out. Avoid toxic fumes from fire.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	May explode when subjected to fire or shock.

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: ACGIH: TNT-Skin, 0.1 MG/M<sup>3</sup> PETN-None RDX-Skin, 1.5 MG/M<sup>3</sup> AL-10MG/M<sup>3</sup>  
OSHA : TNT-Skin, 1.5 MG/M<sup>3</sup> PETN-None RDX-None AL-15MG/M<sup>3</sup>

EFFECTS OF OVEREXPOSURE: TNT ingestion may cause headache, weakness, anemia, or liver damage. Excessive skin contact may cause dermatitis and sensitization. PETN is a vasodilator. Ingestion of RDX may cause nervous system disorders or epileptiform seizures.

#### EMERGENCY AND FIRST AID PROCEDURES:

FUMES: Remove to fresh air.  
IF INGESTED: Obtain medical attention immediately.





# MATERIAL SAFETY DATA SHEET

## CAST BOOSTERS

DATE SEPTEMBER 1998

MSDS NO. P-1

PAGE 2 OF 2

### SECTION VI REACTIVITY DATA

Issued by the Safety and Compliance Dept.

**STABILITY:** Stable under normal conditions. May explode when subjected to fire shock or friction.

**INCOMPATIBILITY (MATERIALS TO AVOID):** Avoid contact with strong acids or alkalis.  
Do not exceed 150°F (66°C).

**HAZARDOUS DECOMPOSITION PRODUCTS:** Gaseous Nitrogen Oxides and Carbon Oxides

### SECTION VII SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:** Sweep up and dispose of all spilled material immediately. Do not permit smoking or open flames near spill site.

**WASTE DISPOSAL METHOD:** Dispose of under direct supervision of a qualified person according to local, state and federal regulations. Call Austin Powder for recommendations and assistance. This material may become a hazardous waste under certain conditions and must be collected, labeled and disposed of per state and federal hazardous waste regulations.

**TRANSPORTATION EMERGENCIES** involving spills, leaks, fires or exposures in the United States:  
**CALL CHEMTREC:** 1-800-424-9300. For emergency calls originating outside the U. S. dial the U. S. access number followed by: 1-703-527-3887. All calls are recorded.

### SECTION VIII SPECIAL PROTECTION INFORMATION:

<b>RESPIRATORY PROTECTION:</b>	Avoid breathing fumes from detonation.
<b>VENTILATION:</b>	Not required under normal conditions.
<b>PROTECTIVE GLOVES:</b>	Not required for normal handling of boosters.
<b>EYE PROTECTION:</b>	Not required under normal conditions.

### SECTION IX SPECIAL PRECAUTIONS

COMPLY WITH "ALWAYS AND NEVER" AS ADOPTED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES. TRANSPORTATION, STORAGE AND USE MUST COMPLY WITH OSHA SAFETY AND HEALTH STANDARDS 29CFR1910.109, APPLICABLE MSHA REGULATIONS, THE DOT AND HAZARDOUS MATERIALS REGULATIONS BATF REQUIREMENTS AND STATE AND LOCAL TRANSPORTATION, STORAGE AND USE REGULATIONS AND ORDINANCES.

DOT or IMDG proper shipping description: Boosters, Without Detonator, 1.1D, UN 0042, PG II

None of the components are listed in the 1987 IARC Monographs, Group 1, 2A, or 2B as a known, probable or possible carcinogen, nor are they listed in the NTP annual report on carcinogens.

\*Prime Gel contains both a Cast Booster and Hydromite.  
Also see the Hydromite MSDS.



# MSDS

## DEEP WOODS OFF

### \*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER : 668986  
PRODUCT NAME(S): DEEP WOODS OFF  
PUMP SPRAY

### MATERIAL SAFETY DATA SHEET

WHMIS Serial No: 8 Issued: 1993-04-26  
Supersedes: 1993-01-27

### PRODUCT IDENTIFICATION

PRODUCT NAME: DEEP WOODS OFF!  
PUMP SPRAY

PRODUCT USE: HOUSEHOLD INSECT  
REPELLANT

HMIS RATING  
HEALTH: 2  
FLAMMABILITY: 3  
REACTIVITY: 0  
SPECIAL WARNING:

### INGREDIENT INFORMATION

WEIGHT %	CAS	INGREDIENT
25	134-62-3	DIETHYLTOLUAMIDE
		LD50: 1,950 MG/KG (ORAL - RAT)
		EXP. LIMITS: NOT ESTABLISHED
15 - 40	64-17-5	ETHANOL
		LD50: 7,060 MG/KG (ORAL - RAT)
		EXP. LIMITS: 1000 PPM (TLV-TWA ACGIH)

### PHYSICAL DATA

PHYSICAL STATE: LIQUID  
ODOUR/APPEARANCE: CLEAR,  
COLOURLESS LIQUID WITH  
CHARACTERISTIC FLORAL ODOUR  
ODOUR THRESHOLD: NOT AVAILABLE  
SPECIFIC GRAVITY: 0.923 (WATER = 1.0)  
VAPOUR PRESSURE (MM HG): NOT  
AVAILABLE  
VAPOUR DENSITY (AIR=1.0): NOT  
AVAILABLE  
CARCINOGENICITY : NONE KNOWN  
REPRODUCTIVE TOXICITY : NONE KNOWN

WATER SOLUBILITY: DISPERSIBLE  
EVAPORATION RATE: NOT AVAILABLE  
(BUTYL ACETATE = 1.0)  
BOILING POINT (DEG C): 75  
FREEZING POINT (DEG C): NOT  
AVAILABLE PH: 7.5  
COEF. WATER/OIL: NOT AVAIL.

### FIRE AND EXPLOSION INFORMATION

FLASH POINT (DEG C): 25 (TCC)  
FLAMMABLE LIMITS: NOT AVAILABLE  
AUTO-IGNITION TEMP (DEG C): NOT  
APPLICABLE  
FLAMMABILITY CLASSIFICATION :  
FLAMMABLE LIQUID  
EXTINGUISHING MEDIA : CARBON  
DIOXIDE, FOAM, DRY CHEMICAL,  
"ALCOHOL" FOAM.  
SPECIAL FIREFIGHTING PROCEDURES :  
NORMAL FIRE FIGHTING PROCEDURE  
MAY BE USED. COOL AND USE CAUTION  
WHEN APPROACHING CONTAINERS.  
FIRE FIGHTERS SHOULD WEAR SCBA AND  
PROTECTIVE CLOTHING.  
EXPLOSION DATA : RISK OF EXPLOSION  
BY FIRE OR OTHER SOURCES OF IGNITION.

### TOXICOLOGICAL AND FIRST AID DATA

LD50 : 5,400 MG/KG (ORAL-MALE RAT),  
2,510 MG/KG (ORAL-FEMALE RAT)  
SOURCE: RALTECH SCIENTIFIC SERVICES  
REPORT 795400 LC50 : NOT AVAILABLE  
PRIMARY ROUTE OF ENTRY :  
EYE CONTACT, INHALATION, INGESTION.  
EFFECTS OF ACUTE EXPOSURE :  
MAY CAUSE EYE IRRITATION.  
MAY DRY OR DEFAT SKIN ON PROLONGED  
CONTACT.  
INHALATION MAY CAUSE DIZZINESS AND  
DROWSINESS.  
EFFECTS OF CHRONIC EXPOSURE :  
NOT AVAILABLE  
IRRITANCY OF PRODUCT: MODERATELY  
IRRITATING TO EYES.  
MILDLY IRRITATING TO SKIN ON  
PROLONGED CONTACT.  
SENSITIZATION : NONE KNOWN  
  
TERATOGENICITY : NONE KNOWN  
MUTAGENICITY : NONE KNOWN





# MSDS

## DEEP WOODS OFF

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### FIRST AID PROCEDURES

EYE CONTACT : FLUSH IMMEDIATELY WITH WATER FOR 15 MINUTES.

IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

SKIN CONTACT : NO SPECIAL REQUIREMENT FOR NORMAL USE.

IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

INHALATION : REMOVE TO FRESH AIR.

ADMINISTER ARTIFICIAL RESPIRATION, IF NEEDED.

INGESTION : DILUTE WITH 1 - 2 GLASSES OF MILK. SEEK MEDICAL AID.

### REACTIVITY DATA

STABILITY : STABLE

CONDITIONS TO AVOID : EXCESSIVE HEAT.

INCOMPATIBILITY : AVOID PLASTIC, RUBBER AND OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS : WHEN EXPOSED TO FIRE, PRODUCES NORMAL COMBUSTION PRODUCTS.

HAZARDOUS POLYMERIZATION : WILL NOT OCCUR.

CONDITIONS TO AVOID : NOT APPLICABLE

### PREVENTIVE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED :

ELIMINATE ALL SOURCES OF IGNITION.

ABSORB WITH OIL-DRI. SWEEP/SCRAPE UP. CONTAINERIZE IN STEEL DRUMS.

WASTE DISPOSAL INFORMATION :

KEEP STORAGE CONTAINERS WELL

SEALED. OBSERVE ALL FEDERAL, STATE AND MUNICIPAL REGULATIONS FOR IGNITABLE WASTE.

### SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION : NOT REQUIRED FOR NORMAL USE.

VENTILATION : ROOM VENTILATION SHOULD BE SUFFICIENT.

PROTECTIVE GLOVES : NOT REQUIRED FOR NORMAL USE. GROSS CONTACT POSSIBLE (E.G. SPILLS): NEOPRENE GLOVE.

EYE PROTECTION : SAFETY GLASSES.

OTHER PROTECTIVE MEASURES :

### SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING : KEEP AWAY FROM SOURCES OF IGNITION.

KEEP AWAY FROM HEAT.

OTHER HANDLING AND STORAGE CONDITIONS : BOND AND GROUND DURING MATERIAL TRANSFER.

DO NOT TRANSFER WITH AIR PRESSURE. KEEP CONTAINER WELL CLOSED WHEN NOT IN USE.

### ADDITIONAL INFORMATION

SHIPPING NAME: ETHANOL SOLUTION

TDG CLASSIFICATION: 3.3

PIN/NIP: 1170

PACKING GROUP:

PLACARD: FLAMMABLE LIQUID

EXEMPTION NAME: CONSUMER COMMODITY

HMIS CLASSIFICATION : REGULATED UNDER P.C.P. ACT NO. 22258

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# MATERIAL SAFETY DATA SHEET

## DETONATING CORD

DATE SEPTEMBER 1998

MSDS NO. C-1

PAGE 1 of 2

### SECTION I

Issued by the Safety and Compliance Dept.

AUSTIN POWDER COMPANY  
25800 SCIENCE PARK DRIVE  
CLEVELAND, OHIO 44122  
EMERGENCY PHONE  
DAY 216-464-2400  
NIGHT 216-464-2407

TRADE NAME AND SYNONYMS  
Lite Line, Scotch Cord, A-Cord, Tuff-Kote, No. 40, No. 50  
No. 60, etc. Seismic Detonating Cord, Slide Line Series, Heavy  
Duty Series, Cordeau Detonant Fuse, Cord, Detonating,  
Flexible, Fine Line, Trim Line, Special 18, Special 25 and  
Special 50.

### SECTION II HAZARDOUS INGREDIENTS

PETN, Pentaerythritol tetranitrate,  $C_5H_8N_4O_{12}$ ,

CAS No. 78-11-5

### SECTION III PHYSICAL DATA

BOILING POINT N/A  
SPECIFIC GRAVITY ( $H_2O = 1$ ) 1.76  
PERCENT VOLATILE BY VOL. (%) N/A  
SOLUBILITY IN WATER: Negligible

VAPOR PRESSURE (mm Hg) Negligible at 20 °C  
VAPOR DENSITY (Air = 1) N/A  
EVAPORATION RATE: N/A

APPEARANCE AND ODOR: Flexible cord with an explosive core of PETN protected within a textile casing covered by a seamless polyethylene and/or ethylene-co-vinyl acetate jacket and an optional outer layer of yarn and wax. PETN is a white crystalline solid. No odor.

### SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT: N/A  
FLAMMABLE LIMITS: N/A  
EXTINGUISHING MEDIA: See below  
SPECIAL FIREFIGHTING PROCEDURES: Do not fight fire. Withdraw personnel immediately. Allow fire to burn itself out.  
UNUSUAL FIRE AND EXPLOSION HAZARDS: May explode when subjected to fire or shock. Avoid toxic fumes from fire.

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: ACGIH: PETN-None  
OSHA : PETN-None

EFFECTS OF OVEREXPOSURE: Ingestion of PETN may cause headache and nausea. PETN is a vasodilator and produces dilation of blood vessels.

#### EMERGENCY AND FIRST AID PROCEDURES:

FUMES: Remove to fresh air.  
IF INGESTED: Obtain medical attention immediately.





# MATERIAL SAFETY DATA SHEET

## DETONATING CORD

DATE SEPTEMBER 1998

MSDS NO. C-1

PAGE 2 OF 2

### SECTION VI REACTIVITY DATA

Issued by the Safety and Compliance Dept.

**STABILITY:** Stable under normal conditions. May explode when subjected to fire or shock.

**INCOMPATIBILITY (MATERIALS TO AVOID):** Avoid contact with strong acids or alkalis.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Gaseous Nitrogen Oxides and Carbon Oxides.

**HAZARDOUS POLYMERIZATION WILL NOT OCCUR.**

### SECTION VII SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:** Sweep up and dispose of all spilled material immediately. Do not permit smoking or open flames near spill site.

**WASTE DISPOSAL METHOD:** Dispose of under direct supervision of a qualified person according to local, state and federal regulations. Call Austin Powder for recommendations and assistance. This material may become a hazardous waste under certain conditions and must be collected, labeled and disposed of per state and federal hazardous waste regulations.

**TRANSPORTATION EMERGENCIES** involving spills, leaks, fires or exposures in the United States:

**CALL CHEMTREC:** 1-800-424-9300. For emergency calls originating outside the U. S. dial the U. S. access number followed by: 1-703-527-3887. All calls are recorded.

### SECTION VIII SPECIAL PROTECTION INFORMATION:

**RESPIRATORY PROTECTION:** Not required under normal conditions.

**VENTILATION:** Not required under normal conditions.

**PROTECTIVE GLOVES:** Not required except to prevent abrasive injuries.

**EYE PROTECTION:** Not required under normal conditions.

### SECTION IX SPECIAL PRECAUTIONS

COMPLY WITH "ALWAYS AND NEVER" AS ADOPTED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES. TRANSPORTATION, STORAGE AND USE MUST COMPLY WITH OSHA SAFETY AND HEALTH STANDARDS 29CFR1910.109, APPLICABLE MSHA REGULATIONS, THE DOT AND HAZARDOUS MATERIALS REGULATIONS BATF REQUIREMENTS AND STATE AND LOCAL TRANSPORTATION, STORAGE AND USE REGULATIONS AND ORDINANCES.

DOT or IMDG proper shipping description: Cord, Detonating, Flexible, 1.1D, UN0065, PG II

May be offered for transportation domestically and transported as Cord, Detonating (UN 0289), Division 1.4 compatibility group D (1.4D) Explosives, if the explosive content does not exceed 100 grains per linear foot and the gross weight of all packages of detonating cord does not exceed (45 KG) 99 pounds per vehicle. See 49 CFR 173.63

The maximum recommended temperature for detonating cord is 160°F (71°C).

None of the components are listed in the 1987 IARC Monographs, Group 1, 2A or 2B as known, probable, or possible carcinogens, nor are they listed in the NTP annual report on carcinogens.





# MATERIAL SAFETY DATA SHEET

## ELECTRIC DETONATORS NON ELECTRIC DETONATORS

DATE SEPTEMBER 1998

MSDS NO. ED-1

PAGE 1 of 2

### SECTION I

Issued by the Safety and Compliance Dept.

AUSTIN POWDER COMPANY  
25800 SCIENCE PARK DRIVE  
CLEVELAND, OHIO 44122  
EMERGENCY PHONE  
DAY 216-464-2400  
NIGHT 216-464-2407

#### TRADE NAME AND SYNONYMS

Coal\* Star, Rock\* Star, Time\* Star, Coal Mine Delays,  
Seismic\* Star, Twin\* Star Detonators, 3-D Star, Seismic  
Detonators and Shock\*Star; In-Hole Delays, Surface Delay  
Connectors, Quick-Relay Connectors, Dual Delays, Shorty  
STD (Shock Tube with Detonators) and MS Connector.

Electric Blasting Caps

### SECTION II HAZARDOUS INGREDIENTS

Explosive components are PETN (possibly TNT) and lead compounds sealed in a metal shell.

PETN, Pentaerythritol Tetranitrate,

CAS No. 78-11-5

Lead Azide, Pb (N<sub>3</sub>)<sub>2</sub>,

CAS No. 13424-46-9

Lead Styphnate, Lead Trinitroresorcinate, C<sub>6</sub>H<sub>3</sub>N<sub>3</sub>O<sub>9</sub>Pb

CAS No. 15245-44-0

TNT, Trinitrotoluene, C<sub>7</sub>H<sub>5</sub>N<sub>3</sub>O<sub>6</sub>

CAS No. 118-96-7 (May be included in some detonators)

### SECTION III PHYSICAL DATA

BOILING POINT

N/A

VAPOR PRESSURE (mm Hg) N/A

SPECIFIC GRAVITY (H<sub>2</sub>O = 1)

N/A

VAPOR DENSITY (Air = 1) N/A

PERCENT VOLATILE BY VOL. (%)

N/A

EVAPORATION RATE: N/A

SOLUBILITY IN WATER:

Insoluble

APPEARANCE AND ODOR: Aluminum or copper shells with attached PVC or polyethylene coated copper or iron leg wires.  
No odor.

### SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT:

N/A

FLAMMABLE LIMITS:

N/A

EXTINGUISHING MEDIA:

See below

SPECIAL FIREFIGHTING PROCEDURES:

Do not fight fire. Withdraw personnel immediately. Allow fire to burn itself out.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

May explode when subjected to flame, heat, impact, friction, electric current, electrostatic or radio frequency energy. Do not exceed 150°F (66°C). Avoid toxic fumes from fire.

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: ACGIH: 0.05 mg/M<sup>3</sup> TWA, lead, elemental, and inorganic compounds, as Pb.  
OSHA : 50 µg/M<sup>3</sup> PEL as Pb. For additional information, see 29 CFR 1910.1025

EFFECTS OF OVEREXPOSURE: None likely when safe blasting practices are employed.

EMERGENCY AND FIRST AID PROCEDURES: Improper handling or misuse may cause detonation resulting in injuries from shrapnel. Lead and lead compounds are listed in the 1987 IARC Monographs as possible human carcinogens (Group 2B). Lead is not listed in the NTP annual report on carcinogens.





# MATERIAL SAFETY DATA SHEET

## ELECTRIC DETONATORS NON ELECTRIC DETONATORS

DATE AUGUST 1998 MSDS NO. ED-1 PAGE 2 OF 2

### SECTION VI REACTIVITY DATA

Issued by the Safety and Compliance Dept.

**STABILITY:** May explode when subjected to flame, heat, impact, friction, electric currents, electrostatic or radio frequency energy. Avoid static charge build up. Keep lead wires shunted until wiring into circuit.

**INCOMPATIBILITY (MATERIALS TO AVOID):** Avoid contact with acids or alkalis.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Gaseous Nitrogen Oxides, Carbon Oxides, and lead fumes.

**HAZARDOUS POLYMERIZATION WILL NOT OCCUR.**

### SECTION VII SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:** Pick up containers or units by hand. Avoid conditions affecting stability. DO NOT use damaged detonators.

**WASTE DISPOSAL METHOD:** Dispose of under direct supervision of a qualified person according to local, state and federal regulations. Call Austin Powder for recommendations and assistance. This material may become a hazardous waste under certain conditions and must be collected, labeled and disposed of per state and federal hazardous waste regulations.

**TRANSPORTATION EMERGENCIES** involving spills, leaks, fires or exposures in the United States:  
**CALL CHEMTREC:** 1-800-424-9300. For emergency calls originating outside the U. S. dial the U. S. access number followed by: 1-703-527-3887. All calls are recorded.

### SECTION VIII SPECIAL PROTECTION INFORMATION:

<b>RESPIRATORY PROTECTION:</b>	Avoid breathing fumes from detonation.
<b>VENTILATION:</b>	Not required.
<b>PROTECTIVE GLOVES:</b>	Not required.
<b>EYE PROTECTION:</b>	Not required.

### SECTION IX SPECIAL PRECAUTIONS

COMPLY WITH "ALWAYS AND NEVER" AS ADOPTED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES. TRANSPORTATION, STORAGE AND USE MUST COMPLY WITH OSHA SAFETY AND HEALTH STANDARDS 29CFR1910.109, APPLICABLE MSHA REGULATIONS, THE DOT AND HAZARDOUS MATERIALS REGULATIONS BATF REQUIREMENTS AND STATE AND LOCAL TRANSPORTATION, STORAGE AND USE REGULATIONS AND ORDINANCES.

THESE DETONATORS MAY BE SHIPPED UNDER ONE OF THE FOLLOWING DOT CLASSIFICATIONS:

DOT or IMDG proper shipping description:

- Detonators, Electric, 1.4B, UN0255, PGII
- Detonators, Electric, 1.1B, UN0030, PGII
- Detonator Assemblies, Non-Electric, 1.1B, UN0360, PGII
- Detonator Assemblies, Non-Electric, 1.4B, UN0361, PGII
- Articles, explosive, n.o.s. 1.4S, UN0349, PGII

Consult IME Safety Library Publication No. 20, SAFETY GUIDE FOR THE PREVENTION OF RADIO FREQUENCY RADIATION HAZARDS IN THE USE OF ELECTRIC BLASTING CAPS, and Publication No. 22, RECOMMENDATIONS FOR THE SAFE TRANSPORTATION OF DETONATORS IN A VEHICLE WITH CERTAIN OTHER EXPLOSIVE MATERIALS.

**\*\*\* IDENTIFICATION \*\*\***

**MSDS RECORD NUMBER : 503384**

**PRODUCT NAME(S): General Triplex Dry Chemical**

**\*\*\* MATERIAL SAFETY DATA \*\*\***

**Material Safety Data Sheet U.S. Department of Labor May be used to comply with Occupational Safety and Health OSHA's Hazard Communication Administration Standard, 29 CFR 1910.1200. (Non-Mandatory Form)**  
**Standard must be consulted for Form Approved specific requirements. OMB No. 1218-0072**

**Section II - Hazardous Ingredients/Identity Information**

<b>Hazardous Components</b>	<b>OSHA PEL</b>	<b>ACGIH TLV</b>	<b>Other Limits (Specific Chemical Identity; Recommended % (optional) Common Name(s))</b>
-----------------------------	-----------------	------------------	-------------------------------------------------------------------------------------------

**Not Applicable - Dry Chemical Fire Extinguishing Agent - Monoammonium Phosphate Base Contains No Hazardous Ingredients**

**Section III - Physical/Chemical Characteristics**

**Boiling Point NA**  
**Specific Gravity (H<sub>2</sub>O = 1) 1.8**  
**Vapor Pressure (mm Hg.) NA**  
**Melting Point NA**  
**Vapor Density (AIR = 1) NA**  
**Evaporation Rate NA (Butyl Acetate = 1)**  
**Solubility in Water**  
**Water repellent. 94% soluble.**  
**Appearance and Odor Fine yellow Powder**

**Section IV - Fire and Explosion Hazard Data**

**Flash Point (Method Used) NA**

**Flammable Limits NA**

**LEL NA**

**UEL NA**

**Extinguishing Media NA - Fire Extinguishing agent**

**Special Fire Fighting Procedures**

**Unusual Fire and Explosion Hazards**

**Section V - Reactivity Data**

**Stability Unstable [ ] Conditions to Avoid**

**Stable [X]**

**Incompatibility (Materials to Avoid)**

**Do not mix with bicarbonate base fire extinguishing agents.**

**Hazardous Decomposition or Byproducts**

**Decomposes to ammonia and phosphoric acid at high temperature.**

**Hazardous Conditions to Avoid**

May Occur [ ]

Polymerization Will Not Occur [X]

#### Section VI - Health Hazard Data

Route(s) of Entry: NA

Inhalation?

NA

Skin?

NA

Ingestion?

NA

Health Hazards (Acute and Chronic) NA

Carcinogenicity: NA NTP? IARC Monographs? OSHA Regulated?

Signs and Symptoms of Exposure NA

Medical Conditions Generally Aggravated by Exposure NA

Emergency and First Aid Procedures Wash from eyes with warm water.

#### Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled

Clean up in normal manner. Use vacuum to avoid causing dust.

Waste Disposal Method

Dispose of in normal manner. Use closed container to prevent dust.

Precautions to Be Taken in Handling and Storing

Protect from moisture

Other Precautions

#### Section VIII - Control Measures

Respiratory Protection (Specify Type)

Use particle mask, 3M 8500 Non-Toxic, when handling

Ventilation

Local Exhaust

Special

Use to remove dust

Mechanical (General) Other

Protective Gloves

Not needed

Eye Protection

Not needed

Other Protective Clothing or Equipment

Not needed.

Work/Hygienic Practices

After handling, wash exposed skin with warm water and soap.

\*\*\*\*\*

\* M S D S \*

\* Canadian Centre for Occupational Health and Safety \*  
\*\*\*\*\* Issue : 94-4 (November, 1994) \*

\*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER : 503383  
PRODUCT NAME(S) : General "Quick-Aid" Dry Chemical  
DATE OF MSDS : 1986-05-06

\*\*\* MANUFACTURER INFORMATION \*\*\*

MANUFACTURER : General Fire Extinguisher Corporation  
ADDRESS : 1685 Shermer Road  
Northbrook Illinois  
U.S.A. 60062  
Telephone: 312-272-7500 (Information)  
EMERGENCY TELEPHONE NO. : 312-729-8800

\*\*\* MATERIAL SAFETY DATA \*\*\*

Material Safety Data Sheet U.S. Department of Labor  
May be used to comply with Occupational Safety and Health  
OSHA's Hazard Communication Administration  
Standard, 29 CFR 1910.1200. (Non-Mandatory Form)  
Standard must be consulted for Form Approved  
specific requirements. OMB No. 1218-0072

IDENTITY (As Used on Label and List) Note: Blank spaces are not permitted.  
General "Quick-Aid" Dry Chemical If any item is not applicable, or no  
information is available, the space  
must be marked to indicate that.

Section I

Date Prepared May 6, 1986  
Signature of Preparer (optional) William R. Warnock

Section II - Hazardous Ingredients/Identity Information

Hazardous Components OSHA PEL ACGIH TLV Other Limits  
(Specific Chemical Identity; Recommended % (optional)  
Common Name(s))

Not Applicable - Dry Chemical Fire Extinguishing Agent - Sodium Bicarbonate  
Base.  
Contains no hazardous ingredients.

Section III - Physical/Chemical Characteristics

Boiling Point NA Specific Gravity (H2O = 1) 2.16  
Vapor Pressure (mm Hg.) NA Melting Point NA



Vapor Density (AIR = 1) NA      Evaporation Rate      NA  
(Butyl Acetate = 1)  
Solubility in Water      Water repellent. 98% soluble  
Appearance and Odor      Fine white powder

---

#### Section IV - Fire and Explosion Hazard Data

---

Flash Point (Method Used)      NA      Flammable Limits      LEL      UEL  
                                                 NA      NA      NA  
Extinguishing Media      NA - Fire Extinguishing agent  
Special Fire Fighting Procedures      NA  
Unusual Fire and Explosion Hazards      NA

---

#### Section V - Reactivity Data

---

Stability      Unstable [ ]      Conditions to Avoid  
                 Stable [X]

#### Incompatibility (Materials to Avoid)

Do not mix with ammonium phosphate base fire extinguishing agents.

#### Hazardous Decomposition or Byproducts

Decomposes to sodium carbonate, carbon dioxide and water at high temperatures.

Hazardous      May Occur [ ]      Conditions to Avoid  
Polymerization      Will Not Occur [X]

---

#### Section VI - Health Hazard Data

---

Route(s) of Entry:      Inhalation?      Skin?      Ingestion?  
                                 NA      NA      NA      NA

Health Hazards (Acute and Chronic) NA

Carcinogenicity: NA      NTP?      IARC Monographs?      OSHA Regulated?

Signs and Symptoms of Exposure      NA

Medical Conditions Generally Aggravated by Exposure      NA

Emergency and First Aid Procedures      Wash from eyes with warm water.

---

#### Section VII - Precautions for Safe Handling and Use

---

Steps to Be Taken in Case Material is Released or Spilled  
Clean up in normal manner. Use vacuum to avoid causing dust.

#### Waste Disposal Method

Dispose of in normal manner. Use closed container to prevent dust.

#### Precautions to Be Taken in Handling and Storing

Protect from moisture.

#### Other Precautions

---

## Section VIII - Control Measures

---

### Respiratory Protection (Specify Type)

Use particle mask, 3M 8500 Non-Toxic, when handling

Ventilation      Local Exhaust      Special

Use to remove dust

Mechanical (General)      Other

Protective Gloves      Not needed      Eye Protection      Not needed

Other Protective Clothing or Equipment      Not needed.

### Work/Hygienic Practices

After handling, wash exposed skin with warm water and soap.

\*\*\*\*\*

\* M S D S \*

\* Canadian Centre for Occupational Health and Safety \*  
\*\*\*\*\* Issue : 94-4 (November, 1994) \*

\*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER : 503382  
PRODUCT NAME(S) : General Purple K Dry Chemical  
DATE OF MSDS : 1986-05-06

\*\*\* MANUFACTURER INFORMATION \*\*\*

MANUFACTURER : General Fire Extinguisher Corporation  
ADDRESS : 1685 Shermer Road  
Northbrook Illinois  
U.S.A. 60062  
Telephone: 312-272-7500 (Information)  
EMERGENCY TELEPHONE NO. : 312-729-8800

\*\*\* MATERIAL SAFETY DATA \*\*\*

Material Safety Data Sheet U.S. Department of Labor  
May be used to comply with Occupational Safety and Health  
OSHA's Hazard Communication Administration  
Standard, 29 CFR 1910.1200. (Non-Mandatory Form)  
Standard must be consulted for Form Approved  
specific requirements. OMB No. 1218-0072

IDENTITY (As Used on Label and List) Note: Blank spaces are not permitted.  
General Purple K Dry Chemical If any item is not applicable, or no  
information is available, the space  
must be marked to indicate that.

Section I

Date Prepared May 6, 1986  
Signature of Preparer (optional) William R. Warnock

Section II - Hazardous Ingredients/Identity Information

Hazardous Components OSHA PEL ACGIH TLV Other Limits  
(Specific Chemical Identity; Recommended % (optional)  
Common Name(s))

Not Applicable - Dry Chemical Fire Extinguishing Agent - Potassium Bicarbonate  
Base  
Contains no hazardous ingredients.

Section III - Physical/Chemical Characteristics

Boiling Point NA Specific Gravity (H2O = 1) 2.17  
Vapor Pressure (mm Hg.) NA Melting Point NA

Vapor Density (AIR = 1) NA      Evaporation Rate      NA

(Butyl Acetate = 1)

Solubility in Water      Water repellent. 94% soluble

Appearance and Odor      Fine purple powder

---

#### Section IV - Fire and Explosion Hazard Data

---

Flash Point (Method Used)      NA      Flammable Limits      LEL      UEL

NA      NA      NA

Extinguishing Media      NA - Fire extinguishing agent

Special Fire Fighting Procedures      NA

Unusual Fire and Explosion Hazards      NA

---

#### Section V - Reactivity Data

---

Stability      Unstable [ ]      Conditions to Avoid

Stable [X]

Incompatibility (Materials to Avoid)

Do not mix with ammonium phosphate base fire extinguishing agents.

Hazardous Decomposition or Byproducts

Decomposes to potassium carbonate, carbon dioxide and water at high temperatures.

Hazardous      May Occur [ ]      Conditions to Avoid

Polymerization      Will Not Occur [X]

---

#### Section VI - Health Hazard Data

---

Route(s) of Entry:      Inhalation?      Skin?      Ingestion?

NA      NA      NA      NA

Health Hazards (Acute and Chronic) NA

Carcinogenicity: NA      NTP?      IARC Monographs?      OSHA Regulated?

Signs and Symptoms of Exposure      NA

Medical Conditions Generally Aggravated by Exposure      NA

Emergency and First Aid Procedures      Wash from eyes with warm water.

---

#### Section VII - Precautions for Safe Handling and Use

---

Steps to Be Taken in Case Material is Released or Spilled

Clean up in normal manner. Use vacuum to avoid causing dust.

Waste Disposal Method

Dispose of in normal manner. Use closed container to prevent dust.

Precautions to Be Taken in Handling and Storing

Protect from moisture.

Other Precautions

-----  
**Section VIII - Control Measures**  
-----

**Respiratory Protection (Specify Type)**

Use particle mask 3M 8506 Non-Toxic, when handling.

Ventilation      Local Exhaust      Special

Use to remove dust.

Mechanical (General)      Other

Protective Gloves      Not needed      Eye Protection      Not needed

Other Protective Clothing or Equipment      Not needed.

**Work/Hygienic Practices**

After handling, wash exposed skin with warm water and soap.

\*\*\*\*\*

\* M S D S \*

\* Canadian Centre for Occupational Health and Safety \*  
\*\*\*\*\* Issue : 94-4 (November, 1994) \*

\*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER : 500586  
PRODUCT NAME(S) : General LS-61 Anti Freeze Charge  
DATE OF MSDS : 1990-09

\*\*\* MANUFACTURER INFORMATION \*\*\*

MANUFACTURER : General Fire Extinguisher Corporation  
ADDRESS : 1685 Shermer Road  
Northbrook Illinois  
U.S.A. 60062  
Telephone: 312-272-7500 (Information)  
EMERGENCY TELEPHONE NO. : 312-729-8800

\*\*\* MATERIAL SAFETY DATA \*\*\*

Material Safety Data Sheet U.S. Department of Labor  
May be used to comply with Occupational Safety and Health  
OSHA's Hazard Communication Standard, Administration  
29 CFR 1910.1200. Standard must be (Non-Mandatory Form)  
consulted for specific requirements. Form Approved  
OMB No. 1218-0072

-----  
IDENTITY (As Used on Label and List)  
General LS-61 Anti Freeze Charge

Note: Blank spaces are not permitted. If any item is not applicable or no  
information is available, the space must be marked to indicate that.

-----  
Section I

-----  
Date Prepared May 6, 1986 Septembre 1990  
Signature of Preparer (optional) William R. Warnock  
-----

Section II - Hazardous Ingredients/Identity Information  
-----

Hazardous Components  
(Specific Chemical  
Identity; Common Name(s)) OSHA PEL ACGIH TLV % (optional)

Anti-Freeze Charge for Pressurized Water  
Anti-gel charge d'eau pressurize

Fire Extinguishers Extincteurs d'incendie

Potassium Carbonate Carbone potasse Not Specified Non specifie >50%  
Other Limits Recommended:

Potassium Acetate Acetate potasse Not Established Non établi <50%  
Other Limits Recommended:

---

### Section III - Physical/Chemical Characteristics

---

Boiling Point Point d'ebullition NA  
Vapor Pressure (mm Hg) pression vapeur NA  
Vapor Density (AIR = 1) densite vapeur NA  
Specific Gravity (H2O = 1) 2.0  
Gravite specifique  
Melting Point point de fonte NA  
Evaporation Rate taux d'evaporation NA  
(Butyl Acetate = 1)  
Solubility in Water 100%  
solubilite d'eau  
Appearance and Odor Off-White granular powder  
apparence & odeur poudre granule blanc casse

---

### Section IV - Fire and Explosion Hazard Data schema feu & explosion hazard

---

Flash Point (Method Used) NA  
point d'etincelles NA

Flammable Limits limite flammable LEL UEL  
NA NA NA

Extinguishing Media NA- Fire extinguisher charge  
point d'extinction charge d'extincteur d'incendie

Special Fire Fighting Procedures  
Procédure speciale pour combattre l'incendie

Unusual Fire and Explosion Hazards  
Hazard feu & explosion peu commun

---

### Section V- Reactivity Data

---

Stability Unstable [ ] Conditions to Avoid  
Stabilité instable Conditions à éviter

Stable [X]  
Stable

Incompatibility (Materials to Avoid) NA  
Incompatibilité matériel à éviter

Hazardous Decomposition or Byproducts NA  
Décomposition dangereuse sous-produit

Hazardous Polymerization May Occur [ ] Conditions to Avoid  
polymerization a survenir Conditions à éviter  
Will Not Occur [X]  
ne surviendra pas.

---

## Section VI - Health Hazard Data    Schema hazard sante

---

Route(s) of Entry	Inhalation?	Skin?	Ingestion?
NA	NA	NA	NA

### Health Hazards (Acute and Chronic)

May cause irritation of the skin and eyes.

Peut causer irritation de la peau et des yeux.

Carcinogenicity:	NA	NTP?	IARC Monographs?	OSHA Regulated?
cancerigene	N/A			

Signs and Symptoms of Exposure	NA
Signes et symptomes a l'exposition	

Medical Conditions Generally Aggravated by Exposure	NA
Conditions medical aggrave par exposition	

### Emergency and First Aid Procedures

Alkaline, Wash from eyes with large volume of warm water.

Laver les yeux avec une large quantite d'eau tiede

Consult doctor. Wash from skin with warm water.

Consulter un medecin. Laver la peau avec eau tiede

---

## Section VII - Precautions for Safe Handling and Use

### Precaution pour utilisation secure

---

### Steps to Be Taken in Case Material is Released or Spilled

Sweep up and dispose in normal manner. Flush spill area with water

balayer de maniere normale. Laver la piece avec de l'eau

Waste Disposal Method	Methode pour dechets
Dispose in normal manner.	Disposer de maniere normale

Precautions to Be Taken in Handling and Storing	Protect from moisture.
precaution a prendre pour utilisation	proteger de la moisissure

Other Precautions    Autres precautions

---

## Section VIII - Control Measures    Mesures controle

---

### Respiratory Protection (Specify Type)

Not required.    Protection respiratoire non requise

Ventilation	Local Exhaust	Special
Ventilation	Mechanical (General)	Other

### Protective Gloves

Wear rubber gloves when preparing solution.

### Eye Protection

Wear goggles or glass with side shields when preparing solution.

### Other Protective Clothing or Equipment



**Wear long sleeves when preparing solution.**

**Work/Hygienic Practices**

**After handling, wash exposed skin thoroughly with warm water.**



# MSDS

## HYDRAULIC FLUID

### \*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER : 480541  
PRODUCT NAME(S): HYDRAULIC FLUID  
DATE OF MSDS : 1991-07-15  
EMERGENCY TELEPHONE NO.:  
303-623-5716 800-424-9300 (CHEMTREC)

### \*\*\* MATERIAL SAFETY DATA \*\*\*

MATERIAL SAFETY DATA SHEET  
307-766 REV. C  
Issued: 8-30-91 Supersedes Rev., Dated:  
6-18-86

### SECTION I - PRODUCT IDENTIFICATION AND USE

PRODUCT IDENTIFIER HYDRAULIC  
FLUID

PRODUCT IDENTIFICATION NUMBER  
(PIN) UN

PRODUCT USE Hydraulic fluid used in  
hydraulic motors and hydraulic power  
supplies.

CHEMICAL NAME AND SYNONYMS  
Industrial oils  
CHEMICAL FAMILY Petroleum hydrocarbons

### SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS & CAS #  
% BY WEIGHT EXPOSURE LIMITS

Petroleum hydrocarbon industrial mixture  
100 NE  
oil (CAS# Unavailable)  
LD50 (SPECIES & ROUTE): NE  
LC50 (SPECIES): NE  
Oil mist, if generated (mineral)  
5 mg/m3 (1, 2)  
(CAS# 64742-65-0)  
10 mg/m3 (3)  
LD50 (SPECIES & ROUTE): NE  
LC50 (SPECIES): NE

EXPLOSION DATA Heat from fire may cause

Sara (40 CFR 372), Title III, Section 313  
Reportable Chemicals: None  
Product does not meet classification criteria of  
WHMIS and is not a controlled  
product.

NOTES: (1) ACGIH TLV (TWA); (2) OSHA  
PEL (TWA); (3) ACGIH STEL; (4) OSHA  
STEL; (5) MFR./SUPPLIER TLV; c=Ceiling  
value LD50 Values are via Oral Route unless  
otherwise indicated.

### SECTION III - PHYSICAL DATA

PHYSICAL STATE Liquid  
VAPOR PRESSURE (mm Hg) NE  
VAPOR DENSITY (Air=1) >1  
% VOLATILE AT ROOM TEMP. DEG C  
Negligible  
EVAPORATION RATE (N-BUTYL  
ACETATE=1) <1  
APPEARANCE Clear, yellow  
SOLUBILITY IN WATER Negligible  
SPECIFIC GRAVITY (WATER=1) 0.88 - 0.89  
BOILING POINT DEG C 316  
FREEZING POINT DEG C NA  
ODOR Characteristic petroleum odor  
ODOR THRESHOLD NE  
pH NA  
COEFFICIENT OF WATER/OIL  
DISTRIBUTION NE  
OTHER NA

### SECTION IV - FIRE AND EXPLOSION DATA

FLAMMABLE YES [ ] NO [X]  
IF YES, UNDER WHAT CONDITIONS? This  
material will burn, but will not readily ignite.  
FLASH POINT DEG C (METHOD) 210  
(COC)  
UPPER FLAMMABLE LIMIT (%) NE  
LOWER FLAMMABLE LIMIT (%) NE  
AUTOIGNITION TEMP. DEG C UN  
METHOD OF EXTINCTION Dry chemical,  
CO2, water spray, foam, sand or earth.  
Water and foam may cause frothing.  
SPECIAL PROCEDURES Water spray may  
minimize vapors and cool containers exposed to  
heat and flame. Avoid spreading burning liquid  
with water used for cooling purposes.  
containers to explode.



# MSDS

## HYDRAULIC FLUID

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HAZARDOUS COMBUSTION PROD. Oxides of carbon, nitrogen, sulfur

### SECTION V - REACTIVITY DATA

CHEMICAL STABILITY YES [X] NO [ ]

AVOID Extended exposure to high temperatures

DECOMPOSITION PRODUCTS See Section IV.

INCOMPATIBILITY WITH OTHER SUBSTANCES Strong oxidizing agents  
HAZARDOUS POLYMERIZATION Will not occur.

### SECTION VI - TOXICOLOGICAL PROPERTIES

#### ROUTES OF ENTRY

SKIN CONTACT [Yes] SKIN ABSORPTION

[NA] EYE CONTACT [Yes]

INHALATION [Yes] INGESTION [Yes]

#### EFFECTS OF ACUTE EXPOSURE TO PRODUCT

This material may cause eye and skin irritation. Direct eye contact may result in burning, tearing and redness. Exposure to mists, or prolonged or repeated exposure to fumes or vapors that may be generated if this material is heated, may cause irritation of nose and throat.

#### EFFECTS OF CHRONIC EXPOSURE TO PRODUCT

Prolonged or repeated skin contact may cause redness, burning and dermatitis.

IRRITANCY OF PRODUCT Eye, skin - slight

SENSITIZATION TO PRODUCT None anticipated

SYNERGISTIC MATERIALS None known

CARCINOGENICITY NA

SOURCE NA

REPRODUCTIVE TOXICITY NA

TERATOGENICITY NA

MUTAGENICITY NA

### SECTION VII - PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT (SPECIFY APPROPRIATE SELECTIONS FOR EACH CATEGORY)

EYES If irritation or redness develops, move victim to fresh air. Flush eyes with clean water.

GLOVES/CLOTHING Wear gloves impermeable to petroleum hydrocarbons to prevent skin contact and possible irritation.

EYE Chemical safety goggles.

RESPIRATORY If TLV is exceeded or for symptoms of overexposure wear a NIOSH-approved respirator.

OTHER An eyewash and safety shower is recommended to be available in the workplace.

ENGINEERING CONTROLS If current ventilation practices are not adequate in maintaining airborne concentrations below the established exposure limits, additional ventilation or exhaust systems may be required.

LEAK/SPILL PROCEDURES Collect leaking liquid in sealable containers. Absorb spilled liquid in sand or inert absorbant.

WASTE DISPOSAL Dispose of product in accordance with local, county, state, provincial, and federal regulations.

HANDLING PROCEDURES/EQUIPMENT AND STORAGE REQUIREMENTS Store in cool, dry location. Keep away from incompatible materials (Section V). Avoid generating oil mists while handling. Avoid prolonged or repeated skin contact. Wash thoroughly after handling. Do not wear oil-soaked clothing or shoes.

SPECIAL SHIPPING INFORMATION Product is not DOT or TDG regulated. The CHEMTREC emergency telephone number is to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals.

### SECTION VIII - FIRST AID MEASURES

INHALATION If irritation of nose or throat develops, move away from source of exposure and into fresh air. Seek medical attention if irritation persists.

SKIN Wipe material from skin and remove contaminated clothing. Wash affected area(s) thoroughly using mild soap and water and, if necessary, a waterless skin cleanser. Seek medical attention if irritation develops or persists.

Seek medical attention if irritation persists.

INGESTION Contact physician or local poison

---



# **MSDS**

## **HYDRAULIC FLUID**

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control center immediately.

### **GENERAL ADVICE/SPECIAL NOTES TO PHYSICIAN**

Acute aspiration of large amounts of oil laden material may produce a serious aspiration pneumonia. Repeated aspiration of small quantities of mineral oil can produce chronic inflammation of the lung.

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# MSDS

## INSECT REPELLENT

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### SECTION 1. CHEMICAL IDENTIFICATION

CHEMINFO RECORD NUMBER : 333  
CCOHS CHEMICAL NAME : Permethrin  
SYNONYMS :  
3-(2,2-Dichloroethenyl)-2,2-dimethylcyclopropanecarboxylic acid, (3-phenoxyphenyl)methyl ester  
3-Phenoxybenzyl  
(1RS)-cis,trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate Permethrine  
TRADE NAME(S) :  
Ambush  
Ectiban  
Pounce

### SECTION 2. DESCRIPTION

APPEARANCE AND ODOUR : Colourless crystals or pale yellow-brown viscous liquid, depending on purity. Partially crystallizes at ambient temperature.

ODOUR THRESHOLD : No information available.

WARNING PROPERTIES : No information available for evaluation.

COMPOSITION/PURITY : Permethrin is a pyrethroid, a man-made chemical which is similar to chemicals occurring naturally in plants (pyrethrins). Commercial permethrin is a mixture of 4 isomers (chemical forms). Most technical material is a mixture of approximately 50-60% trans- and 50-40% cis-isomers, but formulations with 75:25 trans:cis ratio are also available. Permethrin may be formulated as emulsifiable or ultra low volume concentrates, dusts, fogs or wettable powders. This material is often only a small percentage of pesticide formulations. The overall physical, chemical and toxicological characteristics of the product may depend on other ingredients such as solvents.

### SECTION 3. HAZARDS IDENTIFICATION

#### POTENTIAL HEALTH EFFECTS

EFFECTS OF SHORT-TERM (ACUTE)  
disturbances such as nausea, vomiting, irritable behaviour, tremors and muscle weakness might

EXPOSURE ; INHALATION : One study reported respiratory tract irritation in a large percentage of workers exposed to permethrin formulations (emulsion or wettable powder). Symptoms included increased nasal secretion, sneezing, coughing and difficulty breathing and varied with the formulation tested.(12) Other components of products may contribute to the irritation.

SKIN CONTACT : Animal tests show that permethrin is readily absorbed through the skin, but is rapidly broken down in the body and has a low toxicity by this route. There is extensive documentation of a unique skin sensory change caused by permethrin and some other pyrethroids. This is described as a stinging, tingling or burning sensation progressing to numbness in some cases. Usually there is a short delay between exposure and onset of symptoms (30 minutes to a few hours) with a peak in about 8 hours and complete clearance within 24 hours. Inflammation (redness, swelling, blistering) is not apparent. Permethrin tends to produce relatively mild effects.(12-16) Of a group of 4 pyrethroids tested (permethrin, cypermethrin, fenvalerate and flucythrinate), permethrin produced the least amount of skin sensation. Forestry workers exposed to permethrin reported symptoms that were mainly irritative, such as itching and burning of the skin. However, it could not be discerned whether this sensation was an irritative one or a sign of peripheral sensory nerve involvement.

EYE CONTACT : Among forestry workers exposed to permethrin, eye irritation was reported for 7% or 18% of planters, depending on formulation used.(12) There are no reports of eye damage from permethrin contact.

INGESTION : No human cases of ingestion have been reported. Animal data indicates relatively low acute oral toxicity for permethrin. Due to its low toxicity and rapid metabolism, toxic effects are not expected unless there is accidental ingestion of large amounts. In this case, nervous system occur.

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## MSDS

### INSECT REPELLENT

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CARCINOGENICITY : No information available  
TERATOGENICITY AND EMBRYOTOXICITY  
: No human information available. No teratogenic or embryotoxic effects in mice.

REPRODUCTIVE TOXICITY : No information available.

MUTAGENICITY : No human information available. Permethrin was not mutagenic in a variety of short-term tests.

TOXICOLOGICALLY SYNERGISTIC MATERIALS : No information available.

POTENTIAL FOR ACCUMULATION :  
Animal studies indicate rapid breakdown and excretion of this pyrethroid. Thus, the potential for accumulation in humans is considered to be low.

#### SECTION 4. FIRST AID MEASURES

INHALATION : If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical advice immediately.

SKIN CONTACT : Symptoms of skin contact are delayed. Therefore, if contact occurs, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts).

Gently blot or brush away excess chemical quickly. Wash gently and thoroughly with water and non-abrasive soap. If symptoms occur, obtain medical attention immediately. Completely decontaminate clothing, shoes and leather goods before reuse, or discard.

EYE CONTACT : Gently blot or brush away excess chemical quickly. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes, by the clock, holding the eyelid(s) open. If irritation persists, obtain medical advice immediately.

INGESTION : Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 240 to 300 mL (8 to 10 oz.) of water. If vomiting occurs naturally, rinse mouth and repeat administration of water. Obtain medical attention immediately.

FIRST AID COMMENTS : Consult a physician. No special procedures required for permethrin. Flash point data is not available, but it is probable the material can burn only if strongly heated. Cool fire-exposed containers. Pesticide formulations may contain combustible ingredients. Select extinguishing media and prepare fire fighting

and/or the nearest Poison Control Center for all exposures except minor instances of inhalation or skin contact. All first aid procedures should be periodically reviewed by a physician familiar with the material and its conditions of use in the

workplace. NOTE: Other ingredients in permethrin formulations may cause toxic effects and require specific first aid measures.

NOTE TO PHYSICIANS : Studies with permethrin showed that topical Vitamin E acetate (dl-alpha tocopheryl acetate) reduced or eliminated the sensations from skin contact. Mephenesin (a muscle relaxant) has been proposed for use in treatment of pyrethroid poisoning. In tests with rats receiving lethal doses of the pyrethroids cismethrin and deltamethrin, all animals survived when treated with mephenesin.

#### SECTION 5. FIRE FIGHTING MEASURES

FLASH POINT : No information available. Probably can burn only if strongly heated.

LOWER FLAMMABLE (EXPLOSIVE) LIMIT (LFL/LEL) : Not available

UPPER FLAMMABLE (EXPLOSIVE) LIMIT (UFL/UEL) : Not available

AUTOIGNITION (IGNITION) TEMPERATURE : Not available

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT : Probably not sensitive.

EXPLOSION DATA - SENSITIVITY TO STATIC CHARGE : Information not available

COMBUSTION AND THERMAL DECOMPOSITION PRODUCTS : Carbon monoxide, carbon dioxide, hydrogen chloride gas.

FIRE HAZARD COMMENTS : Permethrin may emit toxic hydrogen chloride gas at high temperatures.

EXTINGUISHING MEDIA : Carbon dioxide, dry chemical powder, alcohol foam, polymer foam, water fog.

FIRE FIGHTING INSTRUCTIONS :

procedures appropriate for the product as a whole.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES



## MSDS

### INSECT REPELLENT

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**PRECAUTIONS** : Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment. Ventilate area. Notify occupational health and safety and environmental authorities.

**CLEAN-UP** : Prevent material from entering sewers or waterways. Do not touch spilled material. Stop or reduce leak if safe to do so. Contain spill with earth, sand or absorbent material which does not react with spilled material. Small spills (liquid): Soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labelled containers. Small spills (solid): Shovel into clean, dry, labelled containers and cover. Large spills: Contact fire and emergency services and supplier for advice.

#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

##### RESPIRATORY PROTECTION GUIDELINES

:No specific guidelines are available. Contact manufacturer or supplier for advice. The NIOSH recommendations for PYRETHRUM may be applicable. See CHEMINFO record number 311 (Pyrethrins) for details.

**EYE/FACE PROTECTION** : No specific requirement, but it is good practice to wear chemical safety goggles. During pesticide application, a full-face shield may also be required to ensure adequate protection.

**SKIN PROTECTION** : No specific requirement, but it is good practice to prevent skin contact. During pesticide application, this will require the use of impervious gloves, overalls, boots and/or other resistant protective clothing.

##### RESISTANCE OF MATERIALS FOR PROTECTIVE CLOTHING

: No specific  
**STABILITY** : Stable to heat (more than 2 years at 50 deg C). (2) Relatively stable in sunlight. (17) More stable in acid than alkaline media with optimum stability at about pH 4. (2)  
**HAZARDOUS POLYMERIZATION** : Does not occur

**HAZARDOUS DECOMPOSITION PRODUCTS** : None known

information is available. Contact manufacturer/supplier for advice. Polyvinyl alcohol (PVA) provides good resistance to pyrethrins and related materials (higher monobasic carboxylic esters). Consider solvent base when selecting resistant materials for pyrethroid formulations. NOTE: Resistance of specific materials can vary from product to product. Evaluate resistance under conditions of use and maintain clothing carefully.

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**MELTING POINT**: 34-35 deg C (pure)

**BOILING POINT**: Very high (approximately 200 deg C at 0.008 mm Hg); probably decomposes on heating.

**RELATIVE DENSITY (SPECIFIC GRAVITY)** : 1.19-1.27 at 20 deg C (water = 1)

**SOLUBILITY IN WATER** : Practically insoluble (0.2 mg/L at 20 deg C)

**SOLUBILITY IN OTHER LIQUIDS** :

Readily soluble in common organic solvents such as alcohols, acetone, ether, chloroform, methylene chloride, xylene; moderately soluble in ethylene glycol.

**VAPOUR DENSITY**: Not applicable

**VAPOUR PRESSURE**: Very low ( $3.4 \times 10^{-7}$ ) mm Hg at 25 deg C)

**SATURATION VAPOUR CONCENTRATION** : Not applicable

**EVAPORATION RATE** : Practically zero.

**pH VALUE**: Not available

**CRITICAL TEMPERATURE**: Not applicable

**COEFFICIENT OF OIL/WATER**

**DISTRIBUTION (PARTITION COEFFICIENT)** :

Log P(oct) = 6.5. Also reported as 3.48.

#### SECTION 10. STABILITY AND REACTIVITY

**INCOMPATIBILITY - MATERIALS TO AVOID** : STRONG OXIDIZING AGENTS - May increase the risk of fire. STRONG BASES - Cause decomposition of material. CALCIUM NITRATE

**CORROSIVITY TO METALS** : Not corrosive to aluminum.

**STABILITY AND REACTIVITY COMMENTS**

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## **MSDS**

### **INSECT REPELLENT**

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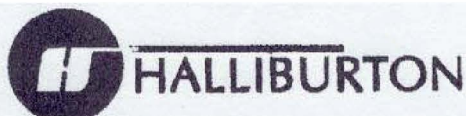
:Permethrin is more stable to sunlight than natural pyrethrins, but some degradation does occur.

#### **SECTION 13. DISPOSAL CONSIDERATIONS**

Pyrethroids are highly toxic to fish. Do not release to water. Disposal by controlled incineration or secure landfill may be acceptable. Treat with alkali (lime) before landfilling. Decontamination of waste material should only be done by

specially-trained personnel using appropriate facilities and protective equipment. Incineration must be carried out in approved facilities equipped with adequate emission control devices. Comply with applicable federal, state and local government regulations regarding disposal.





HALLIBURTON ENERGY SERVICES

Explosive Products Center / 8432 South I-35 West / Alvarado, Texas 76009-9775 / Tel: 817-783-5111 / Fax: 817-783-5812

## MATERIAL SAFETY DATA SHEET

### PRODUCT IDENTIFICATION

PRODUCT NAME: SHAPED CHARGE PRODUCTS Revision Date: 9/29/94

#### TRADE NAMES AND SYNONYMS

Tubing Cutters, Drill Pipe Cutters, Casing Cutters,  
Big Hole Charges, Deep Penetrating Charges, Gravel  
Pack Charges, DYNA-Strip Charges, DYNA-Cap Charges,  
DYNA-Jet Charges, SSB Charges, Sidewinder Charges,  
GSC Charges, Junk Shot Charges, Linear Shaped Charges, (LSC)  
Flexible Linear Shaped Charges (FLSC)

MANUFACTURER: Halliburton Energy Services  
Explosive Products Center  
8432 South I-35 W  
Alvarado, Texas 76009-9775

PRODUCT INFORMATION PHONE: (817) 783-5111

EMERGENCY PHONE: (817) 783-5111

TRANSPORTATION EMERGENCY PHONE: INFOTRAC: (800) 535-5053 U.S. & CANADA

### HAZARDOUS COMPONENTS

CHEMICAL	Exposure Limits	
	TLV	PEL
Cyclotrimethylenetrinitramine (RDX)	1.5mg/M <sup>3</sup>	1.5 mg/M <sup>3</sup>
Cyclotetramethylenetetranitramine (HMX)	NE	NE
Hexanitrostilbene (HNS)	NE	NE
2,6-bis (Picrylamino)-3,5-dinitropyridine (PYX)	NE	NE
Nonanitroterphenyl (NONA)	NE	NE
Desensitizing Wax	NE	NE
Iron	5 mg/M <sup>3</sup>	10 mg/M <sup>3</sup>
Copper	1 mg/M <sup>3</sup>	1 mg/M <sup>3</sup>
Tin	2 mg/M <sup>3</sup>	2 mg/M <sup>3</sup>
Aluminum	5 mg/M <sup>3</sup>	NE
Corrosion Resistant Steel	NE	NE
Lead	0.15 mg/M <sup>3</sup>	50 g/M <sup>3</sup>
Antimony	0.5 mg/M <sup>3</sup>	0.5 g/M <sup>3</sup>

NE = Not Established

### PHYSICAL DATA

Packed powder charges (encased in metal casing).

### HAZARDOUS REACTIVITY

INSTABILITY: May detonate with friction, impact, heat, and low level electrical current.

INCOMPATIBILITY: Acids and alkalis.

HAZARD DECOMPOSITION: Detonation may product shrapnel. Gases produced may contain carbon monoxide and nitrogen oxide. Lead fumes may also be produced.

POLYMERISATION: Polymerization will not occur.

### FIRE AND EXPLOSION DATA

FLASHPOINT: N/A

EXTINGUISHING MEDIA: None

SPECIAL FIRE FIGHTING PROCEDURES: DO NOT fight fire. Isolate area. Evacuate personnel to a safe area. Guard against intruders. Allow fire to burn itself out.



**SPECIAL FIRE FIGHTING PROCEDURES:** DO NOT fight fire. Isolate area. Evacuate personnel to a safe area. Guard against intruders. Allow fire to burn itself out.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** May detonate with impact or on heating. May explode and throw fragments 1 mile or more if fire reaches cargo. Evacuate all persons, including emergency responders from the area.

\*\*\*\*\*

#### **HEALTH HAZARDS**

Shaped Charge Products do not present health hazards in normal handling and use. However, the products are Class A or Class C Explosives and detonation may cause severe physical injury, including death. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced persons in accordance with all applicable Federal, State, and Local Laws, Regulations and Ordinances.

Inhalation of explosive powders may cause nervous system irregularities including headaches and dizziness. May be absorbed through the skin in toxic amounts.

Over exposure to lead may cause adverse effects to the blood forming, nervous, urinary, and reproductive systems including weakness, weight loss, insomnia, constipation, anemia, motor weakness, and encephalopathy. Lead may penetrate the placental barrier and has caused congenital abnormalities in animals. Several animal studies have indicated that high doses of lead may be carcinogenic.

Nitrogen oxides generated during use are skin, eye and respiratory tract irritants.

#### **CARCINOGENICITY**

None of the components of these materials are listed as a carcinogen by NTP, IARC, or OSHA.

#### **OTHER SYMPTOMS AFFECTED**

A review of available data does not identify any conditions worsened by exposure to this product.

#### **FIRST AID**

##### **INHALATION:**

Not a likely route of exposure. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably by mouth-to-mouth. If breathing is difficult, give oxygen. Seek Prompt Medical Attention.

##### **EYE AND SKIN CONTACT:**

Not a likely route of exposure.

##### **INGESTION:**

Not a likely route of exposure.

**NOTE:** Seek prompt medical attention if detonation caused physical injury.

\*\*\*\*\*



#### **SPILL OR LEAK PROCEDURES:**

Use appropriate protective equipment. Isolate area and remove sources of friction, impact, heat, low level electrical current, electrostatic or RF energy. Only competent, experienced persons should be involved in clean up procedures. Sweep up with non-sparking tools and remove.

#### **WASTE DISPOSAL**

Disposal of in compliance with applicable Federal Regulations under the authority of the Resource Conservation and Recovery Act (40 CFR, parts 260-271).

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#### **SPECIAL PROTECTION INFORMATION**

**VENTILATION:** Use only with adequate ventilation.

**RESPIRATORY:** NIOSH/MESA approved particle masks for dust and mist.

**EYE:** Safety glasses or goggles.

**GLOVES:** Normal work gloves.

\*\*\*\*\*

#### **SPECIAL PRECAUTIONS**

Keep away from friction, impact and heat. Do Not consume food, drink or tobacco in areas where they may become contaminated with these materials.

#### **STORAGE CONDITIONS**

Refer to manufacturer's recommendations and warning for proper storage conditions.

\*\*\*\*\*

THE INFORMATION WHICH IS CONTAINED IN THIS DOCUMENT IS BASED UPON AVAILABLE DATA AND BELIEVED TO BE CORRECT. HOWEVER, AS SUCH HAS BEEN OBTAINED FROM VARIOUS SOURCES, INCLUDING THE MANUFACTURER AND INDEPENDENT LABORATORIES, IT IS GIVEN WITHOUT WARRANTY OR REPRESENTATION THAT IT IS COMPLETE, ACCURATE AND CAN BE RELIED UPON. HALLIBURTON ENERGY SERVICES HAS NOT ATTEMPTED TO CONCEAL IN ANY WAY THE DELETERIOUS ASPECTS OF THE PRODUCT LISTED HEREIN, BUT MAKES NO WARRANTY AS TO SUCH. FURTHER, AS HALLIBURTON ENERGY SERVICES CANNOT ANTICIPATE NOR CONTROL THE MANY SITUATIONS IN WHICH THE LISTED PRODUCT OR THIS INFORMATION MAY BE USED BY OUR CUSTOMER, THERE IS NO GUARANTEE THAT THE HEALTH AND SAFETY PRECAUTIONS SUGGESTED WILL BE PROPER UNDER ALL CONDITIONS. IT IS THE SOLE RESPONSIBILITY OF EACH USER OF THE LISTED PRODUCT TO DETERMINE AND COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE LAWS AND REGULATIONS REGARDING ITS USE. THIS INFORMATION IS GIVEN SOLELY FOR THE PURPOSES OF SAFETY TO PERSONS AND PROPERTY. ANY OTHER USE OF THIS INFORMATION IS EXPRESSLY PROHIBITED. GOVERNMENT REGULATIONS DEPARTMENT, HALLIBURTON SERVICES.

\*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER : 802164  
 PRODUCT NAME(S) : CFR 40-86-96 RON UNLEADED GASOLINE + 15% MTBE  
 PRODUCT IDENTIFICATION : PRODUCT CODE R00000573200  
 DATE OF MSDS : 1994-09-13

\*\*\* MATERIAL SAFETY DATA \*\*\*

PRIMARY APPLICATION- MOTOR FUEL

SYNONYMS..... : UNLEADED PREMIUM GASOLINE  
 CAS REGISTRY NO: SEE SEC. 2  
 CAS NAME..... : NO CLASSIFICATION - MIXTURE  
 CHEMICAL FAMILY: MOTOR FUEL.

EMERGENCY PHONE NUMBERS (AFTER NORMAL BUSINESS HOURS)  
 CHEMTREC. 1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

EXPOSURE GUIDELINES

COMPONENT/CAS NO.	OSHA		ACGIH		TWA	STEL	TWA	STEL	TWA	STEL	UNIT
	LO%	HI%	TWA	STEL							
LIMITS FOR THE PRODUCT:											
XYLENE					300	500		300	500		PPM
1330-20-7	.00	25.00	100	150			100	150			PPM
TERT-BUTYL ALCOHOL											
75-65-0	.00	10.00	100	150			100	150			PPM
MTBE											
1634-04-4	15.00	20.00								100 150	PPM
TOLUENE											
108-88-3	.00	30.00	100	150			50				PPM
BENZENE											
71-43-2	.10	4.90	1	5			10				PPM
LIGHT PETROLEUM DISTILLATE											
8006-61-9	.00	84.00	300	500			300	500			PPM
CUMENE											
98-82-8	.00	1.00	50				50				PPM
ETHYL BENZENE											
100-41-4	.00	5.00	100	125			100	125			PPM
N-HEXANE											
110-54-3	.00	5.00	50				50				PPM
NAPHTHALENE											
91-20-3	.00	5.00	10	15			10	15			PPM
CYCLOHEXANE											
110-82-7	.00	9.00	300				300				PPM
1,2,4-TRIMETHYLBENZENE											
95-63-6	.00	5.00	25				25				PPM

ADDITIONAL EXPOSURE LIMITS

OTHER LIMIT- LIMIT IS DEPENDENT ON BENZENE, SEE SECTION 10

3. HAZARDS IDENTIFICATION

## EMERGENCY OVERVIEW

DANGER EXTREMELY FLAMMABLE LIQUID & VAPOR - VAPOR MAY CAUSE FLASH FIRE.

HARMFUL IF INHALED. HIGH VAPOR CONCENTRATIONS MAY CAUSE DIZZINESS. MAY CAUSE SKIN IRRITATION.

HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD-CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

APPEARANCE-- COLORLESS LIQUID. ODOR-- GASOLINE ODOR

## POTENTIAL HEALTH EFFECTS

PRIMARY ROUTES OF ENTRY- INHALATION( X ) SKIN( X ) EYE( X ) INGESTION(X )

INHALATION: EXCESSIVE EXPOSURES MAY CAUSE IRRITATION TO EYES, NOSE, THROAT AND LUNGS. RESPIRATORY TRACT; CENTRAL NERVOUS SYSTEM (BRAIN) EFFECTS; HEADACHES, NAUSEA; DIZZINESS, LOSS OF BALANCE AND COORDINATION; UNCONSCIOUSNESS, COMA; RESPIRATORY FAILURE AND DEATH. REPEATED EXCESSIVE EXPOSURES MAY CAUSE BLOOD DISORDERS SUCH AS ANEMIA & LEUKEMIA. CONTAINS A MATERIAL WHICH HAS BEEN RELATED TO CANCER IN HUMANS.

### SKIN

SKIN ABSORPTION OF MATERIAL MAY PRODUCE SYSTEMIC TOXICITY. MAY CAUSE MODERATE IRRITATION WITH PROLONGED OR REPEATED CONTACT.

### EYE

CONTACT WITH THE EYE MAY CAUSE MILD IRRITATION.

### INGESTION

HARMFUL OR FATAL IF SWALLOWED. INGESTION OF THIS MATERIAL MAY CAUSE ABDOMINAL PAIN; PULMONARY ASPIRATION HAZARD IF SWALLOWED AND/OR VOMITING OCCURS - CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS MATERIAL THAT HAS BEEN RELATED TO CANCER IN HUMANS.

CARCINOGEN LISTED BY-IARC(YES) NTP(NO) OSHA(YES) ACGIH(NO) OTHER(NO)

PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE-  
DISORDERS AND DISEASES OF THE SKIN, EYE, BLOOD FORMING ORGANS,  
NERVOUS SYSTEM AND OR PULMONARY SYSTEM, LUNG (E.G. ASTHMA-LIKE CONDITIONS).

## 4. FIRST AID MEASURES

### INHALATION

MOVE PERSON TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, OBTAIN MEDICAL ASSISTANCE.

### SKIN

WASH WITH SOAP AND WATER UNTIL NO ODOR REMAINS. IF REDNESS OR SWELLING DEVELOPS, OBTAIN MEDICAL ASSISTANCE. IMMEDIATELY REMOVE SOAKED CLOTHING.  
WASH CLOTHING BEFORE REUSE.

### EYE

FLUSH WITH WATER FOR AT LEAST 15 MINUTES. IF IRRITATION PERSISTS, OBTAIN MEDICAL

ASSISTANCE.

#### INGESTION

DO NOT INDUCE VOMITING] DO NOT GIVE LIQUIDS] OBTAIN EMERGENCY MEDICAL ATTENTION. SMALL AMOUNTS WHICH ACCIDENTALLY ENTER MOUTH SHOULD BE RINSED OUT UNTIL TASTE OF IT IS GONE.

#### 5. FIRE FIGHTING MEASURES

FLASH POINT: -40 CLOSED CUP (DEG. F); -40 CLOSED CUP (DEG. C)  
AUTOIGNITION TEMP.: APPROX. 750 (DEG. F); APPROX. 400 (DEG. C)

##### ---FLAMMABLE LIMITS IN AIR---

LOWER EXPLOSIVE LIMIT (LEL): 1.5 % VOLUME  
UPPER EXPLOSIVE LIMIT (UEL): 7.6 % VOLUME

#### FIRE AND EXPLOSION HAZARDS

EXTREMELY FLAMMABLE LIQUID (FLASH POINT LESS THAN 20F)

#### EXTINGUISHING-MEDIA

WATER SPRAY. REGULAR FOAM. DRY CHEMICAL. CARBON DIOXIDE.

#### SPECIAL FIRE FIGHTING INSTRUCTIONS

COOL TANK/ CONTAINER. WEAR SELF-CONTAINED BREATHING APPARATUS. WEAR STRUCTURAL FIREFIGHTERS PROTECTIVE CLOTHING.

NFPA/HMIS CLASSIFICATION

HAZARD RATING

HEALTH - 1 / 1    FIRE - 3 / 3

0=LEAST    1=SLIGHT    2=MODERATE  
3=HIGH    4=EXTREME

REACTIVITY - 0 / 0

PERSONAL PROTECTION INDEX - X

SPECIFIC HAZARD: FLAMMABLE

#### 6. ACCIDENTAL RELEASE MEASURES

PREVENT IGNITION; STOP LEAK; VENTILATE AREA. CONTAIN SPILL. USE WATER SPRAY TO DISPERSE VAPORS. KEEP UPWIND OF LEAK. FOR LARGE SPILL, LEAK OR RELEASE. USE PERSONAL PROTECTIVE EQUIPMENT STATED IN SECTION 8. ADVISE EPA; STATE AGENCY IF REQUIRED. ABSORB ON INERT MATERIAL. SHOVEL, SWEEP OR VACUUM SPILL.

#### 7. HANDLING AND STORAGE

KEEP AWAY FROM HEAT, SPARKS AND FLAME. KEEP CONTAINER TIGHTLY CLOSED. KEEP IN WELL VENTILATED SPACE. NFPA CLASS IA STORAGE. CONSULT NFPA AND OSHA CODES. TRANSFER OPERATIONS MUST BE ELECTRICALLY GROUNDED TO DISSIPATE STATIC BUILDUP. AVOID PROLONGED BREATHING OF MIST OR VAPOR. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. AVOID CONTACT WITH EYES. WASH THOROUGHLY AFTER HANDLING. NEVER SIPHON BY MOUTH.

#### 8. EXPOSURE CONTROL / PERSONAL PROTECTION

CONSULT WITH A HEALTH/SAFETY PROFESSIONAL FOR SPECIFIC SELECTION.

#### VENTILATION

USE ONLY WITH ADEQUATE VENTILATION. EXPLOSION PROOF VENTILATION EQUIPMENT REQUIRED.

#### PERSONAL PROTECTIVE EQUIPMENT

##### EYE

SPLASH PROOF CHEMICAL GOGGLES OR FULL FACE SHIELD RECOMMENDED TO PROTECT AGAINST SPLASH OF PRODUCT.

##### GLOVES

PROTECTIVE GLOVES RECOMMENDED TO PROTECT AGAINST CONTACT WITH PRODUCT. THE FOLLOWING GLOVE MATERIALS ARE ACCEPTABLE: POLYETHYLENE; NEOPRENE; NITRILE; POLYVINYL ALCOHOL; VITON;

##### RESPIRATOR

CONCENTRATION-IN-AIR DETERMINES PROTECTION NEEDED. USE ONLY NIOSH CERTIFIED RESPIRATORY PROTECTION. HALF-MASK AIR PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGES IS ACCEPTABLE TO 10 TIMES THE EXPOSURE LIMIT. FULL-FACE AIR PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGES IS ACCEPTABLE TO 50 TIMES THE EXPOSURE LIMIT NOT TO EXCEED THE CARTRIDGE LIMIT OF 1000 PPM. PROTECTION BY AIR PURIFYING RESPIRATORS IS LIMITED. USE A POSITIVE PRESSURE-DEMAND FULL-FACE SUPPLIED AIR RESPIRATOR OR SCBA FOR EXPOSURES ABOVE 50X THE EXPOSURE LIMIT. IF EXPOSURE IS ABOVE IDLH(IMMEDIATELY DANGEROUS TO LIFE & HEALTH) OR THERE IS THE POSSIBILITY OF AN UNCONTROLLED RELEASE OR EXPOSURE LEVELS ARE UNKNOWN THEN USE A POSITIVE PRESSURE-DEMAND FULL-FACE SUPPLIED AIR RESPIRATOR WITH ESCAPE BOTTLE OR SCBA.

##### OTHER

IF CONTACT IS UNAVOIDABLE, WEAR CHEMICAL RESISTANT CLOTHING. THE FOLLOWING MATERIALS ARE ACCEPTABLE AS PROTECTIVE CLOTHING MATERIALS: POLYETHYLENE; POLYVINYL ALCOHOL(PVA); NEOPRENE; NITRILE; VITON; POLYURETHANE; SAFETY SHOWER AND EYE WASH AVAILABILITY RECOMMENDED. LAUNDRY SOILED CLOTHES. FOR NON-FIRE EMERGENCIES, POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS (SCBA) & STRUCTURAL FIREFIGHTERS' PROTECTIVE CLOTHING WILL PROVIDE LIMITED PROTECTION.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT..... : <100 - 435 (DEG. F) <38 - 223 (DEG. C)

MELTING POINT..... : N/A

SPECIFIC GRAVITY... : 0.74 (WATER=1)

PACKING DENSITY.... : N/A (KG/M3)

VAPOR PRESSURE..... : 325 TO 525 (MM HG @ 20 DEG C)

VAPOR DENSITY..... : 4 (AIR=1)

SOLUBILITY IN WATER.: SLIGHT (% BY VOLUME)

PH INFORMATION..... : N/A AT CONC. N/A G/L H2O

% VOLATILES BY VOL.: 100

EVAPORATION RATE... : RAPID & VARIES (ETHYL ETHER=1)

OCTANOL/WATER COEFF.: N.D.

APPEARANCE..... : COLORLESS LIQUID.

ODOR..... : GASOLINE ODOR

ODOR THRESHOLD..... : 15(EST) (PPM)

VISCOSITY..... : N.D. SUS @ N.D DEG F ... N.D. CST @ N.D DEG C

MOLECULAR WEIGHT... : N.D. (G/MOLE)

## 10. STABILITY AND REACTIVITY

### STABILITY

STABLE. CONDITIONS TO AVOID-

SOURCES OF IGNITION.

INCOMPATIBLE MATERIALS

STRONG OXIDIZERS

HAZARDOUS DECOMPOSITION

CARBON MONOXIDE AND ASPHYXIANTS ARE PRODUCED BY FIRE IGNITION

### POLYMERIZATION

WILL NOT OCCUR.

## 11. TOXICOLOGICAL INFORMATION

FOR THE PRODUCT

INHALATION: OVEREXPOSURE MAY CAUSE EYE & RESPIRATORY TRACT IRRITATION, CNS (BRAIN) EFFECTS, DIZZINESS, LOSS OF BALANCE & COORDINATION, COMA, UNCONSCIOUSNESS, DEATH. CONTAINS

BENZENE: PROLONGED/REPEATED OVER- EXPOSURE TO BENZENE CAN CAUSE BLOOD DISORDERS RANGING FROM ANEMIA TO LEUKEMIA. SKIN: PROLONGED/WIDESPREAD CONTACT MAY CAUSE ADVERSE EFFECT, IRRITATION. EYE: MILD IRRITANT.

ORAL: HARMFUL/FATAL IF SWALLOWED.

ASPIRATION HAZARD--CAN ENTER LUNGS & CAUSE DAMAGE. LIFETIME INHALATION CAUSED LIVER TUMORS (FEMALE MICE)--API STUDY ON AN UNLEADED GASOLINE.

GASOLINE ENGINE EXHAUST CLASSIFIED AS POSSIBLE (IARC 2B) CARCINOGEN (INADEQUATE EVIDENCE EXISTS IN ANIMALS & HUMANS).

XYLENE (COMPONENT) INHALATION: VAPOR HARMFUL] OVEREXPOSURE TO HIGH CONCENTRATIONS CAN CAUSE EYE, NOSE, THROAT, LUNG IRRITATION; CNS (BRAIN) EFFECTS, DIZZINESS, DIFFICULTY IN BREATHING, UNCONSCIOUSNESS, COMA AND DEATH. REPORTS OF HEART IRREGULARITIES FROM MASSIVE EXPOSURES. PROLONGED OVEREXPOSURES CAN CAUSE BRAIN, LIVER, KIDNEY EFFECTS/DAMAGE.

SKIN: CAN BE ABSORBED. REPEATED/PROLONGED CONTACT IS IRRITATING. EYES: IRRITANT. ORAL: HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD-CAN ENTER LUNGS AND CAUSE DAMAGE. IN RATS, PROLONGED BREATHING OF 500 PPM-FETAL EFFECTS BUT NO BIRTH DEFECTS; NO EFFECTS AT 400 PPM. HIGH ORAL DOSE WAS TOXIC TO PREGNANT MICE; CLEFT PALATE IN FETUSES.

TERT-BUTYL ALCOHOL (COMPONENT)

INHALATION: VAPOR HARMFUL] OVEREXPOSURE TO HIGH CONCENTRATIONS MAY CAUSE EYE, NOSE, THROAT, LUNG IRRITATION; CNS (BRAIN) EFFECTS, HEADACHE, NAUSEA, DIZZINESS, DROWSINESS, VOMITING, FATIGUE, BLURRED VISION, LOSS OF BALANCE, UNCONSCIOUSNESS.

SKIN: SLIGHT IRRITANT.

EYES: SEVERE IRRITATION WITH CONTACT.

ORAL: MODERATELY TOXIC.



SYMPTOMS SIMILAR TO INHALATION. HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD IF SWALLOWED AND/OR VOMITING OCCURS - CAN ENTER LUNGS AND CAUSE DAMAGE. CAUSED TOXICITY/DAMAGE TO FETUS WHEN REPEATEDLY FED AT VERY HIGH CONCENTRATIONS TO PREGNANT MICE.

MTBE (COMPONENT) INHALATION: MAY CAUSE EYE & RESPIRATORY TRACT IRRITATION, COUGHING, SHORTNESS OF BREATH, CNS (BRAIN) EFFECTS, HEADACHE, NAUSEA, DIZZINESS, INCOORDINATION. SKIN: PROLONGED/REPEATED CONTACT MAY CAUSE IRRITATION.

EYE CONTACT: IRRITATION. ORAL: MODERATE ACUTE TOXICITY. HARMFUL OR FATAL IF SWALLOWED AND/OR VOMITING OCCURS BECAUSE IT CAN ENTER LUNGS AND CAUSE DAMAGE--PULMONARY ASPIRATION HAZARD. LIFETIME OVEREXPOSURES AT HIGH CONCENTRATIONS: 3000 PPM & HIGHER--RATS: DEATH, KIDNEY DAMAGE, AND KIDNEY TUMORS (MALES); AT 8000 PPM-- LIVER TUMORS IN FEMALE MICE. MICE: MATERNAL TOXICITY & FETAL EFFECTS AT 4000 PPM. HUMAN EXPOSURES AT THESE HIGH CONCENTRATIONS ARE HIGHLY UNLIKELY.

TOLUENE (COMPONENT) INH: VAPOR HARMFUL] OVEREXPOSURE TO HIGH CONCENTRATIONS: EYE, NOSE, THROAT, LUNG IRRITATION; CNS (BRAIN) EFFECTS, DIZZINESS, DIFFICULTY IN BREATHING, COMA, DEATH. REPORTS OF HEART BEAT IRREGULARITIES FROM MASSIVE EXPOSURE. PROLONGED OVEREXPOSURE CAN CAUSE BRAIN, LIVER, KIDNEY EFFECTS/DAMAGE. SKIN: CAN BE ABSORBED. PROLONGED CONTACT IS IRRITATING.

EYE: IRRITATION.

ORAL: HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD-CAN ENTER LUNG & CAUSE DAMAGE. PREG: MAY CAUSE MENTAL AND/OR GROWTH RETARDATION IN CHILDREN OF FEMALE SOLVENT ABUSERS (SNIFFERS); IN RATS PROLONGED BREATHING WAS TOXIC TO FETUSES & MOTHERS - 1500 PPM; NO BIRTH DEFECTS - 5000 PPM. NO EFFECTS - 750 PPM.

BENZENE (COMPONENT) INHALATION: VAPOR HARMFUL] OVEREXPOSURE TO HIGH CONCENTRATIONS CAN CAUSE CENTRAL NERVOUS SYSTEM (BRAIN) EFFECTS, HEADACHE, DIZZINESS, DIFFICULTY IN BREATHING, UNCONSCIOUSNESS, COMA, DEATH. THERE ARE REPORTS OF HEART IRREGULARITIES FROM MASSIVE EXPOSURES. IARC GROUP 1- HUMAN CANCER HAZARD. REPEATED PROLONGED INHALATION CAN CAUSE BLOOD DISORDERS-ANEMIA TO LEUKEMIA. CANCER-ANIMAL STUDIES. CHANGES IN CHROMOSOMES. FETAL EFFECTS IN ANIMAL STUDIES AT REPEATED/PROLONGED EXPOSURES.

SKIN: CAN BE ABSORBED; IRRITATING.

EYE: SEVERE IRRITATION POSSIBLE.

ORAL: POISON] HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD- CAN ENTER LUNGS AND CAUSE DAMAGE.

LIGHT PETROLEUM DISTILLATE (COMPONENT) INHALATION: OVEREXPOSURE MAY CAUSE EYE, NOSE, THROAT, RESPIRATORY TRACT IRRITATION; CNS (BRAIN) EFFECTS, NAUSEA, DIZZINESS, UNCONSCIOUSNESS, COMA, RESPIRATORY FAILURE, DEATH. SKIN: IRRITATION WITH PROLONGED AND REPEATED CONTACT.

EYE: MILD TO MODERATE IRRITATION. ORAL: HARMFUL OR FATAL IF SWALLOWED DUE TO A PULMONARY ASPIRATION HAZARD IF SWALLOWED AND/OR VOMITING OCCURS - CAN ENTER LUNGS AND CAUSE DAMAGE.

CUMENE (COMPONENT) INHALATION: VAPOR HARMFUL] OVEREXPOSURE TO HIGH CONCENTRATIONS CAN CAUSE EYE, NOSE, THROAT, RESPIRATORY TRACT IRRITATION, CNS (BRAIN) EFFECTS, NAUSEA, HEADACHE, DIZZINESS, DIFFICULTY IN BREATHING, INCOORDINATION, UNCONSCIOUSNESS, DEATH. SKIN: LOW ACUTE TOXICITY. CAN BE ABSORBED. MODERATE IRRITATION. EYE: MILD IRRITANT.

ORAL: MODERATE ACUTE TOXICITY. HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD - CAN ENTER LUNGS AND CAUSE DAMAGE. OVEREXPOSURE BY INHALATION/INGESTION MAY CAUSE LIVER, KIDNEY, SPLEEN AND LUNG EFFECTS/DAMAGE. EQUIVOCAL RESULTS IN ANIMAL STUDY REPORTING BIRTH DEFECTS & EMBRYONAL MORTALITY. CONFLICTING RESULTS IN GENETIC TESTS.

ETHYL BENZENE (COMPONENT)

INHALATION: OVEREXPOSURE TO HIGH CONCENTRATIONS CAN CAUSE EYE, NOSE, THROAT & RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM (BRAIN) EFFECTS, DIZZINESS, LOSS OF BALANCE & COORDINATION, UNCONSCIOUSNESS, RESPIRATORY FAILURE & DEATH. PROLONGED BREATHING CAN CAUSE LIVER AND KIDNEY EFFECTS.

SKIN: LOW ACUTE TOXICITY. ABSORBABLE THROUGH SKIN. MODERATE IRRITATION.

EYE: MODERATE IRRITANT.

ORAL: HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD IF SWALLOWED AND/OR VOMITING OCCURS-CAN ENTER LUNGS AND CAUSE DAMAGE. PROLONGED OVEREXPOSURE OF 1000 PPM CAUSED MATERNAL AND FETAL TOXICITY.

N-HEXANE (COMPONENT) INHALATION: OVEREXPOSURE TO HIGH CONCENTRATIONS CAN CAUSE EYE, NOSE, THROAT, RESPIRATORY TRACT IRRITATION; CNS (BRAIN) EFFECTS, DIZZINESS, CONFUSION, COMA.

SKIN: CAN BE ABSORBED. PROLONGED AND REPEATED CONTACT MAY CAUSE IRRITATION, BURNING SENSATION, ITCHING, BLISTERS.

EYE: IRRITATING; REPEATED EXPOSURE MAY CAUSE VISUAL DISTURBANCE.

INGESTION: ASPIRATION HAZARD IF SWALLOWED AND/OR VOMITING OCCURS - CAN ENTER LUNGS AND CAUSE DAMAGE. PROLONGED EXPOSURES CAUSE HARM TO THE CENTRAL NERVOUS SYSTEM PRODUCING A LACK OF FEELING IN EXTREMITIES (HANDS AND FEET) AND MORE SEVERE NERVE DAMAGE (PERIPHERAL NEUROPATHY).

NAPHTHALENE (COMPONENT)

INHALATION: VAPORS MAY CAUSE RESPIRATORY TRACT IRRITATION, HEADACHE, CONFUSION, EXCITEMENT, PROFUSE SWEATING, ABDOMINAL PAIN, VOMITING, DIARRHEA.

SKIN: MAY BE ABSORBED THROUGH THE SKIN. MAY CAUSE IRRITATION AND DERMATITIS. CAN CAUSE ALLERGIC SKIN REACTION.

EYE: VAPOR CAUSES IRRITATION AT 15 PPM. CONTACT MAY CAUSE IRRITATION, CONJUNCTIVITIS, CORNEAL OPACITY. REPORTED TO CAUSE CATARACTS.

ORAL: MODERATELY TOXIC IF SWALLOWED . BLOOD EFFECTS (HEMOLYSIS), LIVER &

KIDNEY INJURY MAY ALSO OCCUR. MAY CAUSE GASTROINTESTINAL IRRITATION, VOMITING, AND DIARRHEA.

CYCLOHEXANE (COMPONENT)

INHALATION: OVEREXPOSURE TO HIGH CONCENTRATIONS CAN CAUSE EYE, NOSE, THROAT, RESPIRATORY IRRITATION; CNS (BRAIN) EFFECTS, HEADACHE, DIZZINESS, EXCITEMENT, DIFFICULTY BREATHING, FATIGUE, INCOORDINATION, ANESTHESIA, UNCONSCIOUSNESS, DEATH.

SKIN: LOW ACUTE TOXICITY. MAY BE IRRITATING WITH PROLONGED AND REPEATED CONTACT.

EYE: MAY CAUSE MILD IRRITATION WITH CONTACT.

ORAL: MODERATE ACUTE TOXICITY. INGESTION OF LARGE QUANTITIES MAY CAUSE EFFECTS SIMILAR TO INHALATION. HARMFUL OR FATAL IF SWALLOWED AND/OR VOMITING OCCURS BECAUSE IT CAN ENTER LUNGS AND CAUSE DAMAGE--PULMONARY ASPIRATION HAZARD.

1,2,4-TRIMETHYLBENZENE (COMPONENT) INHALATION: MODERATELY TOXIC. VAPOR OR MIST IRRITATES THE EYES, MUCOUS MEMBRANES, RESPIRATORY TRACT. OVEREXPOSURE MAY CAUSE CENTRAL NERVOUS SYTEM (BRAIN) EFFECTS, NARCOTIC EFFECTS, NAUSEA, HEADACHE, DIZZINESS, INCOORDINATION, UNCONSCIOUSNESS, COMA, DEATH.

SKIN: CAN BE ABSORBED. CONTACT MAY CAUSE IRRITATION AND DERMATITIS. EYE: IRRITATING

INGESTION: MODERATELY TOXIC. SYMPTOMS SIMILAR TO INHALATION. HARMFUL OR FATAL IF SWALLOWED. PULMONARY ASPIRATION HAZARD- HARMFUL OR FATAL BECAUSE IT CAN ENTER THE LUNGS AND CAUSE DAMAGE.

12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY: GASOLINE SPILLS ARE TOXIC TO FISH AND AQUATIC FLORA.

13. DISPOSAL CONSIDERATIONS

FOLLOW FEDERAL, STATE AND LOCAL REGULATIONS. RCRA HAZARDOUS WASTE. DO NOT FLUSH TO DRAIN/ STORM SEWER. CONTRACT TO AUTHORIZED DISPOSAL SERVICE.

14. TRANSPORTATION INFORMATION

DOT- PROPER SHIPPING NAME- GASOLINE HAZARD CLASS- 3 (FLAMMABLE LIQUID)  
IDENTIFICATION NUMBER- UN1203  
LABEL REQUIRED- PG II, PLACARD; FLAMMABLE LIQUID  
IMDG- PROPER SHIPPING NAME- GASOLINE  
IATA- PROPER SHIPPING NAME- GASOLINE

15. REGULATORY INFORMATION

SARA 302 THRESHOLD PLANNING QUANTITY. N/A

SARA 304 REPORTABLE QUANTITY ..... 204 POUNDS

SARA 311 CATEGORIES- IMMEDIATE (ACUTE) HEALTH EFFECTS.. Y  
DELAYED (CHRONIC) HEALTH EFFECTS.. Y  
FIRE HAZARD ..... Y  
SUDDEN RELEASE OF PRESSURE HAZARD. N

REACTIVITY HAZARD ..... N

WHEN A PRODUCT AND/OR COMPONENT IS LISTED BELOW, THE REGULATORY LIST ON WHICH IT APPEARS IS INDICATED.

FOR THE PRODUCT - FL MA MN NJ 03 04  
XYLENE - FL IL MA ME MN NJ PA RI 01 07  
TERT-BUTYL ALCOHOL - FL MA MN NJ PA 01  
MTBE - MA NJ PA 01 07  
TOLUENE - CA FL MA MN NJ PA 01 07  
BENZENE - CA FL MA MN NJ PA 01 03 04 06 07 10  
LIGHT PETROLEUM DISTILLATE - FL MA MN NJ  
CUMENE - FL MA MN NJ PA 01 07  
ETHYL BENZENE - FL MA MN NJ PA 01 07  
N-HEXANE - FL MA MN NJ PA  
NAPHTHALENE - FL MA MN NJ PA 01 07  
CYCLOHEXANE - FL MA MN NJ PA 01 07  
1,2,4-TRIMETHYLBENZENE - MA NJ PA 01

01=SARA 313  
02=SARA 302/304  
03=IARC CARCINOGEN  
04=OSHA CARCINOGEN  
05=ACGIH CARCINOGEN  
06=NTP CARCINOGEN  
07=CERCLA 302.4  
08=WHMIS CONTROLLED PROD.  
10=OTHER CARCINOGEN

THIS PRODUCT OR ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE U.S. TSCA INVENTORY.

#### 16. OTHER INFORMATION

PRECAUTIONARY LABELING FOR PUMPS, PORTABLE CONTAINERS, AND DRUMS IS REQUIRED. A "HAZARDOUS WHEN EMPTY" PICTOGRAM AND D.O.T. FLAMMABLE LIQUID LABEL ARE ALSO REQUIRED FOR DRUMS. BECAUSE BENZENE IS PRESENT IN THIS PRODUCT ABOVE 0.1%, THE OSHA STANDARD

FOR BENZENE IS APPLICABLE TO WORK LOCATIONS UPSTREAM OF FINAL DISCHARGE FROM TERMINALS. CONSULT 29CFR1910.1028 FOR DETAILS. PROLONGED AND REPEATED EXCESSIVE EXPOSURES TO BENZENE CAN RESULT IN BLOOD DISORDERS RANGING FROM ANEMIA TO LEUKEMIA. RECOMMEND THAT EXPOSURES TO BENZENE BE KEPT BELOW 1.0 PPM FOR 8-HOURS; 5.0 PPM FOR 15-MIN. NORMAL SERVICE STATION OPERATIONS ARE BELOW THESE VALUES. FOR USE AS A MOTOR FUEL ONLY. DO NOT USE FOR ANY OTHER PURPOSE.

## **APPENDIX D - ATTACHMENT 7**

### **D-7.0 SAFETY FORMS**

This attachment contains the following safety forms applicable to site operations for the Munitions Removal Action at the LIA:

- Contractor Significant Incident Report (CSIR-1)
- Employee Injury Report
- Record of Safety Violation or Non-Compliance
- Safety Inspection Report
- Safety Meeting/Training Form
- Site Visitor Log
- Tailgate Safety Briefing

*This space is intentionally left blank.*

- ☐ Initial Report
- ☐ Follow-up Report
- ☐ Final Report

## Contractor Significant Incident Report (CSIR)

<b>1. General Information</b>		
<b>Contracting Activity/ROICC Office:</b>		
<b>Accident Classification:</b>		
<input type="checkbox"/> Injury <input type="checkbox"/> Fatality <input type="checkbox"/> Environment <input type="checkbox"/> Procedural Issues <input type="checkbox"/> Lessons Learned <input type="checkbox"/> Illness <input type="checkbox"/> Property Damage <input type="checkbox"/> Other _____		
<b>Involving:</b>		
<input type="checkbox"/> Confined Space <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Heavy Construction Equip.) <input type="checkbox"/> Hazardous Material <input type="checkbox"/> Crane and Rigging <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Material Handling) <input type="checkbox"/> Trenching/Excavation <input type="checkbox"/> Diving <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Man-Lift/Elevated Platform) <input type="checkbox"/> Waterfront/Marine Operations <input type="checkbox"/> Demolition/Renovation <input type="checkbox"/> Fall from Ladder <input type="checkbox"/> Fall from Scaffold <input type="checkbox"/> Other _____ <input type="checkbox"/> Electrical <input type="checkbox"/> Fall from Roof <input type="checkbox"/> Fire		
<b>2. Personal Information</b>		
<b>Name (Last, First, MI):</b>		<b>Age:</b>
		<b>Sex:</b>
<b>Job Title/Description:</b>	<b>Employed By:</b>	
<b>Supervisor Name (Last, First, MI) &amp; Title:</b>	<b>Was the person trained to perform this activity/task?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>What type of training was received (OJT, classroom, etc)?</b>	<b>Date of the most recent formal training and topics discussed?</b>	
<b>3. Witness Information</b>		
<b>Witness #1: Name (Last, First, MI):</b>	<b>Job Title/Description:</b>	
<b>Employed By:</b>	<b>Supervisor Name (Last, First, MI):</b>	
<b>Witness #2: Name (Last, First, MI):</b>	<b>Job Title/Description:</b>	
<b>Employed By:</b>	<b>Supervisor Name (Last, First, MI):</b>	
<b>Additional Witnesses:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(List any additional witnesses on a separate sheet and attach.)</i>		

4. Contract Information		
<b>Type of Contract:</b> <input type="checkbox"/> A/E <input type="checkbox"/> BOS <input type="checkbox"/> CLEAN <input type="checkbox"/> Construction <input type="checkbox"/> Design Build <input type="checkbox"/> FSCC <input type="checkbox"/> FSSC <input type="checkbox"/> JOC <input type="checkbox"/> RAC <input type="checkbox"/> Service <input type="checkbox"/> Other _____		
<b>Contract Number &amp; Title:</b>		<b>Industrial Group &amp; Industrial Type:</b>
<b>Prime Contractor Name/Address/Phone &amp; Fax No:</b>		<b>Sub Contractor Name/Address/Phone &amp; FAX No:</b>
<b>Safety Manager (Last, First, MI):</b>		<b>Safety Manager (Last, First, MI):</b>
<b>Insurance Carrier:</b>		<b>Insurance Carrier:</b>
5. Accident Description		
<b>Date of Accident:</b>	<b>Time of Accident:</b>	<b>Exact Location of Accident:</b>
Describe the accident in detail in your words: <i>(Use the back of page if you need additional space)</i>		
<b>Direct Cause(s) of Accident:</b>		

<b>Indirect Cause(s) of Accident:</b>	
<b>Action(s) taken to prevent re-occurrence or provide on-going corrective actions:</b>	
<b>Corrective Action Beginning Date:</b>	<b>Anticipated Completion Date:</b>
<b>Personal Protective Equipment:</b> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Available and used</span> <span><input type="checkbox"/> Available and not used</span> <span><input type="checkbox"/> Not Required</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span><input type="checkbox"/> Not related to Mishap</span> <span><input type="checkbox"/> Wrong PPE for job</span> </div> <b>List PPE Used:</b> <div style="height: 60px; border: 1px solid black; margin-top: 5px;"></div>	
<b>Type of Construction Equipment (Make, Model, Serial #, VIN#) Involved:</b>	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <b>Was Hazardous Material Spilled/Released?</b>  <b>Please List Hazardous Material(s) Involved:</b> <div style="height: 40px; border: 1px solid black; margin-top: 5px;"></div> </div> <div style="text-align: right;"> <input type="checkbox"/> Yes    <input type="checkbox"/> No         </div> </div>	
<b>Who provided first aid or cleanup of mishap site?</b>	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <b>Any blood-borne pathogen exposure, other than EMTs?</b>  <b>Who?</b> <div style="height: 40px; border: 1px solid black; margin-top: 5px;"></div> </div> <div style="text-align: right;"> <input type="checkbox"/> Yes    <input type="checkbox"/> No         </div> </div>	
<b>List OSHA and EM-385-1-1 standards that were violated:</b>	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <b>Was site secured and witness statements taken immediately?</b>  <b>By Whom?</b> <div style="height: 40px; border: 1px solid black; margin-top: 5px;"></div> </div> <div style="text-align: right;"> <input type="checkbox"/> Yes    <input type="checkbox"/> No         </div> </div>	



6. Injury Illness/Fatality Information		
Severity of Injury/Illness:		
<input type="checkbox"/> Fatality	<input type="checkbox"/> Lost Workday Case Involving Days Away From Work	
<input type="checkbox"/> Temporary Disability	<input type="checkbox"/> Recordable Workday Case Involving Restricted Duty	
<input type="checkbox"/> Permanent Total Disability	<input type="checkbox"/> Other Recordable Case	<input type="checkbox"/> Recordable First Aid Case
<input type="checkbox"/> Permanent Partial Disability	<input type="checkbox"/> Non-Recordable Case	<input type="checkbox"/> No Injury
Estimated Days Lost:	Estimated Days Hospitalized:	Estimated Days Restricted Duty:
List Primary Body Part Affected:	List Other Body Part(s) Affected:	
Nature of Injury/Illness for Primary Body Part (Examples: Amputation, Burn, Hernia):		
Type of Accident (Examples: Fall same level, Lifting, Bitten, Exerted):		
Source of Accident (Examples: Crane, Carbon Monoxide, Ladder, Welding Equipment):		
7. Causal Factors (Explain answers on supplementary sheet)		
• Design – Design of facility, workplace, or equipment was a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Inspection/Maintenance – Inspection & Maintenance procedures were a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Persons Physical Condition – In your opinion, the physical condition of the person was a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Operation Procedures – Operating procedures were a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Job Practices – One or more job safety/health practices not being followed when the accident occurred contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Human Factors – One or more human factors, such as a person's size or strength contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Environmental Factors – Heat, cold, dust, sun, glare, etc., contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Chemical and Physical Agent Factors – Exposure to chemical agents, such as dust, fumes, mist, vapors, or physical agents such as noise, radiation, etc., contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Office Factors – Office setting such as lifting office furniture, carrying, stooping, contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Support Factors – Inappropriate tools/resources were provided to perform the task?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• PPE – Improper selection, use or maintenance of PPE contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Drugs/Alcohol – In your opinion, were drugs or alcohol a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Job Hazard Analysis – The lack of an adequate (IAW-EM-385-1-1 Sec 01.A) activity hazard analysis was a contributing factor.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Job Hazard Analysis – JHA was not site specific and/or did not address the type of work/operations performed when the mishap occurred.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Management – A lack of adequate supervision contributed to the accident.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Management – Inadequate information was provided at pre con meeting.	<input type="checkbox"/> Yes <input type="checkbox"/> No	

8. OSHA Information			
Date OSHA was Notified:	Date(s) of Investigation:	Date of citation: <i>(Attach Copy)</i>	Dollar amount of Penalties:
9. Report Preparer			
Name (Last, First, MI):		Date of Report:	
Title:		Signature:	
Employer:			
Phone #:			

# CONTRACTOR SIGNIFICANT INCIDENT REPORT (CSIR) INSTRUCTIONS

## Complete Sections Appropriate to Incident (Rev. 06/02).

**NOTE: THE ATTACHED CSIR FORM IS TO BE USED BY CONTRACTORS TO RECORD THE RESULTS OF THEIR ACCIDENT/INCIDENTS INVESTIGATIONS AND SHALL BE PROVIDED TO THE CONTRACTING OFFICER WITHIN THE REQUIRED TIMEFRAMES.**

**GENERAL.** Complete a separate report for each person who was injured in the accident. A report needs to be completed for all OSHA recordable accidents, property damage in excess of \$2000.00 (This amount is for record purposes only. GOV is not required to enter property damage reports into FAIR database if it is less than \$10,000.00.), WHE accidents, or near miss/high visibility mishaps. Please type or print legibly. Appropriate items shall be marked with an "X" in box(es), non-applicable sections shall be marked "N/A". If additional space is needed, provide the information on a separate sheet of paper and attach to the completed form.

Mark the report:

**INITIAL** – If this form is being used as initial notification of a Fatality or High Visibility Mishap. The initial form is due within 4 hours of a serious accident. A form marked 'Follow-up' or 'Final' is required within 5 days.

**FOLLOW-UP** – If you are providing additional information on a report previously submitted.

**FINAL** – If you are providing a completed report and expect no changes.

## SECTION 1 – GENERAL INFORMATION

**CONTRACTING ACTIVITY/ROICC OFFICE** - Enter the name and address of the Contracting Office administering the contract under which the mishap took place (e.g. ROICC MCBH, ROICC NORFOLK, PWC GUAM, etc.).

**ACCIDENT CLASSIFICATION - INJURY/ILLNESS/FATALITY/PROPERTY DAMAGE/-PROCEDURAL ISSUES/-ENVIRONMENTAL/LESSONS LEARNED/OTHER** – Mark the appropriate block(s) if the incident resulted in any of these conditions.

**INVOLVING** - If the mishap involved any of the conditions listed under "Involving" mark the appropriate box(es). Specific questions associated with each of these conditions are available from the Contracting Officer to assist you in your investigation. When these questions are used they shall be attached as part of this report.

## SECTION 2 - PERSONAL INFORMATION

**NAME** - Enter last name, first name, middle initial of person involved.

**AGE** - Enter age.

**SEX** - Enter M for Male and F for Female.

**JOB TITLE/DESCRIPTION** - Enter the job title/description assigned to the injured person (e.g. carpenter, laborer, surveyor, etc.).

**EMPLOYED BY** - Enter employment company name of the person involved.

**SUPERVISOR'S NAME & TITLE** - Enter name and title of the immediate supervisor.

**WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?** - For the purpose of this section "trained" means the person has been provided the necessary information (either formal and/or on-the-job (OJT) training) to competently perform the activity/task in a safe and healthful manner.

**TYPE OF TRAINING** - Indicate the specific type of training (classroom or on-the-job) that the injured person received before the accident happened.

**DATE OF MOST RECENT FORMAL TRAINING/TOPICS DISCUSSED** - Enter the month, day, and year of the last *formal* training completed that covered the activity/task being performed at the time of the accident. List topics that were discussed at the training identified above.

## SECTION 3 - WITNESS INFORMATION

The following applies to Witness #1 and Witness #2:

**WITNESS NAME** - Enter last name, first name, middle initial of the witness.

**JOB DESCRIPTION/TITLE** - Enter the job title/description assigned to the witness (e.g. carpenter, laborer, surveyor, etc.).

**EMPLOYED BY** - Enter the name of the employment company of the witness.

**SUPERVISORS NAME** - Enter name of immediate supervisor of the witness.

**ADDITIONAL WITNESSES** - Provide same information, as above, for each witnesses. Use additional pages if necessary.

## SECTION 4 - CONTRACTOR INFORMATION

**TYPE OF CONTRACT** - Mark appropriate box. A/E means architect/engineer. If "OTHER" is marked, specify type of contract on line provided.

**CONTRACT NUMBER/TITLE** - Enter complete contract number and title of prime contract (e.g. N62477-85-C-0100, 184 Pearl City Hsg. Revitalization).

**CONSTRUCTION INDUSTRIAL GROUP AND INDUSTRIAL TYPE** – This is the type of construction that will be done at this project.

1. First, you must choose the Industrial Group. You have 4 choices to choose from: (**NOTE!** Review of the Industrial Types below and knowing what the projects scope of work is will assist you in deciding what the Industrial Group should be.)

- a. Buildings
- b. Heavy Industrial
- c. Infrastructure
- d. Light Industrial

2. Once you have chosen the Industrial Group, you now select the Industrial Type. You have multiple choices under each Group, chose the one you feel fits the project most closely because on most projects there won't be an exact match:

- a. Buildings:
  - (1) Communications Ctr.
  - (2) Dormitory/Hotel
  - (3) High-rise Office
  - (4) Hospital
  - (5) Housing
  - (6) Laboratory
  - (7) Low-rise Office
  - (8) Maintenance Facility
  - (9) Parking Garage
  - (10) Physical Fitness Ctr.
  - (11) Restaurant/Nightclub
  - (12) School
  - (13) Warehouse
- b. Heavy Industrial:
  - (1) Chemical Mfg.
  - (2) Electrical (Generating)
  - (3) Environmental
  - (4) Metals Refining/Processing
  - (5) Mining
  - (6) Natural Gas Processing
  - (7) Oil Exploration/Production
  - (8) Oil Refining
  - (9) Pulp and Paper
- c. Infrastructure:
  - (1) Airport
  - (2) Electrical Distribution
  - (3) Flood Control
  - (4) Highway
  - (5) Marine Facilities
  - (6) Navigation
  - (7) Rail
  - (8) Tunneling
  - (9) Water/Wastewater
- d. Light Industrial:
  - (1) Automotive Assembly/Mfg.
  - (2) Consumer Products Mfg.
  - (3) Foods
  - (4) Microelectronics Mfg.
  - (5) Office Products Mfg.
  - (6) Pharmaceuticals Mfg.

#### CONTRACTOR'S NAME/ADDRESS/PHONE NUMBER

- (1) PRIME - Enter the exact name (title of firm), address, phone and fax numbers of the prime contractor.
- (2) SUBCONTRACTOR - Enter the exact name, address, phone and fax numbers of any subcontractor involved in the accident.

#### SAFETY MANAGER'S NAME

- (1) PRIME - Enter the name of the prime contractor safety manager.
- (2) SUBCONTRACTOR - Enter the name of the subcontractors safety manager.

#### INSURANCE CARRIER

- (1) PRIME - Enter the exact name/title of the prime's insurance company. Policy number not required.
- (2) SUBCONTRACTOR - Enter the exact name of the subcontractor's insurance company. Policy number not required.

## SECTION 5 - ACCIDENT DESCRIPTION

**DATE OF ACCIDENT** - Enter the month, day, and year of accident.

**TIME OF ACCIDENT** - Enter the local time of accident in military time. Example: 14:30 hrs (not 2:30 p.m.).

**EXACT LOCATION OF ACCIDENT** - Enter facts needed to locate the accident scene (installation/project name, building/room number, street, direction and distance from closest landmark, etc.).

**DESCRIBE THE ACCIDENT IN DETAIL.** Fully describe the accident in the space provided. If property damage involved, give estimated dollar amount of damage and/or repair costs involved. If additional space is needed continue on a separate sheet and attach to this report. Give the sequence of events that describe what happened leading up to and including the accident. Fully identify personnel and equipment involved and their role(s) in the accident. Ensure that relationships between personnel and equipment are clearly specified. Ensure questions below regarding direct cause(s), indirect cause(s), and actions taken are answered. **NOTE!** Review questions in Section 7 below before completing.

**DIRECT CAUSE(S)** - The direct cause is that single factor which most directly lead to the accident. See examples below.

**INDIRECT CAUSE(S)** - Indirect cause are those factors, which contributed to, but did not directly initiate the occurrence of the accident.

Examples for Direct and Indirect Cause:

- 1. Employee was dismantling scaffold and fell 12 feet from unguarded opening.  
*Direct cause:* Failure to provide fall protection at elevation

*Indirect causes:* Failure to enforce safety requirements: improper training/motivation of employee (possibility that employee was not knowledgeable of fall protection requirements or was lax in his attitude toward safety); failure to ensure provision of positive fall protection whenever elevated; failure to address fall protection during scaffold dismantling in phase hazard analysis.

2. Private citizen had stopped his vehicle at intersection for red light when vehicle was struck in rear by contractor vehicle. (note contractor vehicles was in proper safe working condition.)

*Direct cause:* Failure of contractor driver to maintain control of and stop contractor vehicle within safe distance.

*Indirect cause:* Failure of employee to pay attention to driving (defensive driving).

**ACTION(S) TAKEN TO PREVENT RE-OCCURRENCE OR PROVIDE ON-GOING CORRECTIVE ACTIONS.** Fully describe all the actions taken, anticipated, and recommended to eliminate the cause(s) and prevent reoccurrence of similar accidents/illnesses. Continue on back or additional sheets of paper if necessary to fully explain and attach to the complete report form.

**CORRECTIVE ACTION DATES -**

(1) Beginning - Enter the date when the corrective action(s) identified above will begin.

(2) Anticipated Completion - Enter the date when the corrective action(s) identified above will be completed.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)** - Mark appropriate box(es) and list PPE which was being used by the injured person at the time of the accident (e.g. protective clothing, shoes, glasses, goggles, respirator, safety belt, harness, etc.)

**TYPE OF CONTRACTOR EQUIPMENT** - Enter the Serial Number, Model Number and specific type of equipment involved in the mishap (e.g. dump truck (off highway), crane (rubber tire), pump truck (concrete), etc.).

**WAS HAZARDOUS MATERIAL SPILLED/RELEASED?** - Mark appropriate block and list name(s) of any reportable quantities of hazardous materials spilled/released during the mishap.

**WHO PROVIDED FIRST AID OR CLEAN-UP OF MISHAP SITE?** - List name(s) of individual(s) and employer, if known.

**ANY BLOOD-BORNE PATHOGEN EXPOSURE, OTHER THAN EMT?** - Mark appropriate block and list name(s) of individual(s) and employer, if known.

**LIST OSHA AND/OR EM 385-1-1 STANDARDS THAT WERE VIOLATED.** - Self explanatory.

**WAS SITE SECURED AND WITNESS STATEMENT TAKEN IMMEDIATELY?** - Mark appropriate block and list by whom.

## SECTION 6 - INJURY/ILLNESS/FATALITY INFORMATION

**SEVERITY OF INJURY/ILLNESS** - Mark appropriate box.

**ESTIMATED DAYS LOST** - Enter the estimated number of workdays the person will lose from work. Update when final data is known.

**ESTIMATED DAYS HOSPITALIZED** - Enter the estimated number of workdays the person will be hospitalized. Update when final data is known.

**ESTIMATED DAYS RESTRICTED DUTY** - Enter the estimated number of workdays the person, as a result of the accident, will not be able to perform all of their regular duties. Update when final data is known.

**BODY PART(S) AFFECTED** - Enter the most appropriate primary and when applicable, secondary, etc. body part(s) affected (e.g. arm: wrist: abdomen: single eye; jaw : both elbows: second finger: great toe: collar bone: kidney, etc.).

**NATURE OF INJURY/ILLNESS FOR PRIMARY BODY PART** - Enter the most appropriate nature of injury/illness (e.g. amputation, back strain, dislocation, laceration, strain, asbestosis, food poisoning, heart conditions, etc.).

**TYPE AND SOURCE OF INJURY/ILLNESS** - Type and Source Codes are used to describe what caused the incident.

(1) TYPE Code stands for an "Action" (Example: Worker, installing conduit, lost his balance and fell five feet from a ladder. Type Code: Fell different levels".) Select the most appropriate Type of injury from the list below:

### TYPE OF INJURY/ILLNESS

STRUCK BY/AGAINST	CONTACTED CONTACTED WITH (INJURED PERSON MOVING) CONTACTED BY (OBJECT WAS MOVING)
FELL, SLIPPED, TRIPPED SAME LEVEL/DIFFERENT LEVEL/NO FALL	EXERTED LIFTED, STRAINED BY (SINGLE ACTION) STRESSED BY (REPEATED ACTION)
CAUGHT ON/IN/BETWEEN	EXPOSED INHALED/INGESTED/ABSORBED/EXPOSED TO
PUNCTURED, LACERATED PUNCTURED BY/CUT BY/STUNG BY/BITTEN BY	TRAVELING IN

(2) SOURCE Code stands for an "object or substance." (Example: Worker, installing conduit, lost his balance and fell five feet from a ladder. Source Code: "Ladder".) Select the most appropriate Source of injury from the list below:

### SOURCE OF INJURY/ILLNESS

BUILDING OR WORKING AREA WALKING/WORKING AREA STAIRS/STEPS LADDER FURNITURE BOILER/PRESSURE VESSEL EQUIPMENT LAYOUT WINDOWS/DOORS ELECTRICITY	DUST, VAPOR, ETC. DUST (SILICA, COAT, ETC.) FIBERS ASBESTOS GASES CARBON MONOXIDE MIST, STEAM, VAPOR, FUME WELDING FUMES PARTICLES (UNIDENTIFIED)
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ENVIRONMENT CONDITION TEMPERATURE EXTREME (INDOOR) WEATHER (ICE, RAIN, HEAT, ETC.) <b>FIRE, FLAME, SMOTE (NOT TABACCO)</b> NOISE RADIATION LIGHT VENTILATION TOBACCO SMOKE STRESS (EMOTIONAL) CONFINED SPACE	CHEMICAL, PLASTIC, ETC. DRY CHEMICAL - CORROSIVE DRY CHEMICAL - TOXIC DRY CHEMICAL - EXPLOSIVE DRY CHEMICAL - FLAMMABLE LIQUID CHEMICAL - CORROSIVE LIQUID CHEMICAL - TOXIC LIQUID CHEMICAL - EXPLOSIVE LIQUID CHEMICAL - FLAMMABLE PLASTIC WATER MEDICINE
MACHINE OR TOOL HAND TOOL (POWERED: SAW, GRINDER, ETC.) HAND TOOL (NON POWERED) MECHANICAL POWER TRANSMISSION APPARATUS GUARD, SHIELD (FIXED, MOVEABLE, INTERLOCK) VIDEO DISPLAY TERMINAL PUMP, COMPRESSOR, AIR PRESSURE TOOL HEATING EQUIPMENT WELDING EQUIPMENT	INANIMATE OBJECT BOX, BARREL, ETC. PAPER METAL ITEM, MINERAL NEEDLE GLASS SCRAP, TRASH, WOOD FOOD CLOTHING, APPAREL, SHOES
MACHINE OR TOOL HAND TOOL (POWERED: SAW, GRINDER, ETC.) HAND TOOL (NON POWERED) MECHANICAL POWER TRANSMISSION APPARATUS GUARD, SHIELD (FIXED, MOVEABLE, INTERLOCK) VIDEO DISPLAY TERMINAL PUMP, COMPRESSOR, AIR PRESSURE TOOL HEATING EQUIPMENT WELDING EQUIPMENT	INANIMATE OBJECT BOX, BARREL, ETC. PAPER METAL ITEM, MINERAL NEEDLE GLASS SCRAP, TRASH, WOOD FOOD CLOTHING, APPAREL, SHOES
VEHICLE AS DRIVER OF PRIVATELY OWNED, RENTAL VEH. AS PASSENGER OF PRIVATELY OWNED, RENTAL VEH. DRIVER OF GOVERNMENT VEHICLE PASSENGER OF GOVERNMENT VEHICLE COMMON CARRIER (AIRLINE, BUS, ETC.) AIRCRAFT (NOT COMMERCIAL) BOAT, SHIP, BARGE	ANIMATE OBJECT DOG OTHER ANIMAL PLANT INSECT HUMAN (VIOLENCE) HUMAN (COMMUNICABLE DISEASE) BACTERIA, VIRUS (NOT HUMAN CONTACT)
MATERIAL HANDLING EQUIPMENT EARTHMOVER (TRACTOR, BACKHOE, ETC.) CONVEYOR (FOR MATERIAL AND EQUIPMENT) ELEVATOR, ESCALATOR, PERSONNEL HOIST HOIST, SLING CHAIN, JACK CRANE FORKLIFT HANDTRUCK, DOLLY	PERSONAL PROTECTIVE EQUIPMENT PROTECTIVE CLOTHING, SHOES, GLASSES, GOGGLES RESPIRATOR, MASK DIVING EQUIPMENT SAFETY BELT, HARNESS PARACHUTE

## SECTION 7 - CAUSAL FACTORS

Review thoroughly. Answer each question by marking the appropriate block. **NOTE!** If any answer is yes, explain in section 5 above.

- (1) **DESIGN** - Did inadequacies associated with the building or work site play a role? Would an improved design or layout of the equipment or facilities reduce the likelihood of similar accidents? Were the tools or other equipment designed and intended for the task at hand?
- (2) **INSPECTION/MAINTENANCE** - Did inadequately or improperly maintained equipment, tools, workplace, etc., create or worsen any hazards that contributed to the accident? Would better equipment, facility, work site or work activity inspections have helped avoid the accident?
- (3) **PERSONS PHYSICAL CONDITION** - Do you feel that the accident would probably not have occurred if the employee was in "good" physical condition? If the person involved in the accident had been in better physical condition, would the accident have been less severe or avoided altogether? Was overexertion a factor?
- (4) **OPERATION PROCEDURES** - Did lack of or inadequacy within established operating procedures contribute to the accident? Did any aspect of the procedures introduce any hazard to, or increase the risk associated with the work process? Would establishment or improvement of operating procedures reduce the likelihood of similar accidents?
- (5) **JOB PRACTICES** - Were any of the provision of the Safety and Health Requirements Manual (EM 385-1-1) violated? Was the task being accomplished in a manner which was not in compliance with an established job hazard analysis or activity hazard analysis? Did any established job practice (including EM 385-1-1) fail to adequately address the task or work process? Would better job practices improve the safety of the task?
- (6) **HUMAN FACTORS** - Was the person under undue stress (either internal or external to the job)? Did the task tend toward overloading the capabilities of the person: i.e., did the job require tracking and reacting to many external inputs such as displays, alarms, or signals? Did the arrangement of the workplace tend to interfere with efficient task performance? Did the task require reach strengths, endurance, agility, etc., at or beyond the capabilities of the employee? Was the work environment ill-adapted to the person? Did the person need more training, experience, or practice in doing the task? Was the person inadequately rested to perform safely?
- (7) **ENVIRONMENTAL FACTORS** - Did any factors such as moisture, humidity, rain, snow, sleet, hail, ice, fog, cold, heat, sun temperature changes, wind, tides, floods, currents, terrain; dust, mud, glare, pressure changes, lighting, etc., play a part in the accident?

(8) **CHEMICAL AND PHYSICAL AGENT FACTORS** - Did exposure to chemical agents (either single shift exposure or long-term exposure such as dusts, fibers, (asbestos, etc.), silica, gases (carbon, monoxide, chlorine, etc.), mists, steam, vapors, fumes, smoke, other particulates, liquid or dry chemicals that are corrosive, toxic, explosive or flammable, by-products of combustion or physical agents such as noise, ionizing radiation, non-ionizing radiation (UV radiation created during welding, etc.) contribute to the accident/incident?

(9) **OFFICE FACTORS** - Did the fact that the accident occurred in an office setting or to an office worker have a bearing on its cause? For example, office workers tend to have less experience and training in performing tasks such as lifting office furniture. Did physical hazards within the office environment contribute to the hazard?

(10) **SUPPORT FACTORS** - Was the person using an improper tool for the job? Was inadequate time available or utilized to safely accomplish the task? Were less than adequate personnel resources (in terms of employee skills, number of workers, and adequate supervision) available to get the job done properly? Was funding available, utilized and adequate to provide proper tools, equipment, personnel, site preparation, etc.

(11) **PERSONAL PROTECTIVE EQUIPMENT** - Did the person fail to use appropriate personal protective equipment (gloves, eye protection, hard-toed shoes, respirator, etc) for the task or environment? Did protective equipment provided or worn fail to provide adequate protection from the hazard(s)? Did lack of or inadequate maintenance of protective gear contribute to the accident?

(12) **DRUGS/ALCOHOL** - Is there any reason to believe the person's mental or physical capabilities, judgment, etc., were impaired or altered by the use of drugs or alcohol? Consider the effects of prescription medicine and over the counter medications as well as illicit drug use. Consider the effect of drug or alcohol induced "hangovers".

(13) **JOB/ACTIVITY HAZARD ANALYSIS** - Was a written Job/Activity Analysis completed for the task being performed at the time of the accident? If one was made, did it address the hazard adequately or does it need to be updated? If none made, will one be made? These may also need to be addressed in the Corrective Actions Taken section. Mark the appropriate box. If one was made, attach a copy of the analysis to the report.

(14) **MANAGEMENT** - Did the lack of supervisor or management support play a part in the mishap? Mark the appropriate box.

## SECTION - 8 OSHA INFORMATION - Complete this section if applicable

### SECTION 9 - REPORT PREPARER

**Providing a completed CSIR to the Contracting Officer is the PRIME CONTRACTOR'S RESPONSIBILITY.** Enter the name, date of report, title, employer, phone number and signature of person completing the accident report and provide it to the Contracting Officer, or his representative, responsible for oversight of that contractor activity. **NOTE!** If prepared by other than the Prime Contractor, a person employed by the Prime Contractor must sign that they have reviewed and concur with the report and it's findings (e.g. company owner, project supervisor/foreman, Safety Officer, etc.).

## USA Environmental, Inc. Employee Injury Report

Site/Location: \_\_\_\_\_

Control Number: \_\_\_\_\_

*This is an official document to be initiated by USA supervisors. Be accurate, thorough, and answer all questions.*

### BACKGROUND DATA

Todays Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Date of Accident: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_ AM PM

Day of Accident: S M T W T F S Weather Conditions: Sunny Clear Rain Fog Overcast

Temperature: 0-32 32-50 50-70 70-85 85 + Wind Conditions: Still Moderate High None

Location of Accident: \_\_\_\_\_ Time Accident was Reported: \_\_\_\_ AM PM

\_\_\_\_\_  
Reported to Whom: \_\_\_\_\_

### PERSONAL DATA

Name: Last \_\_\_\_\_ First \_\_\_\_\_ MI \_\_\_\_\_

Sex: F M DOB: \_\_\_\_/\_\_\_\_/\_\_\_\_ Place of Birth: \_\_\_\_\_

SSAN: \_\_\_\_-\_\_\_\_-\_\_\_\_ DOH: \_\_\_\_/\_\_\_\_/\_\_\_\_ Position: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_

Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_ Zip: \_\_\_\_\_

### ACCIDENT DATA

Nature of Accident: Near Miss \_\_\_\_ 1<sup>st</sup> Aid \_\_\_\_ Dr Visit \_\_\_\_ Ambul \_\_\_\_ Hospitalized \_\_\_\_ Fatality \_\_\_\_

If Fatality, Name of Agency Notified: \_\_\_\_\_ Type of Injury: \_\_\_\_\_

Did Employee Leave the Work Site: Yes \_\_\_\_ No \_\_\_\_ If Yes, Time Departed: \_\_\_\_ AM PM

Name of Medical Facility: \_\_\_\_\_ Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

Description of Accident: \_\_\_\_\_

Activity at Time of Accident: \_\_\_\_\_



**Employee Injury Report Con't.****WITNESS DATA**

Witness Name: Last \_\_\_\_\_ First \_\_\_\_\_ MI \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_ Employed By: \_\_\_\_\_

Statement Attached: Yes \_\_\_\_ No \_\_\_\_ Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_

**ACCIDENT ACTIONS/ANALYSIS**Accident Cause(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Lack of Safety Equipment a Factor: Yes \_\_\_\_ No \_\_\_\_ If Yes, Explain: \_\_\_\_\_  
\_\_\_\_\_Safety Regulations or Guidance Violated: Yes \_\_\_\_ No \_\_\_\_ If Yes, Explain: \_\_\_\_\_  
\_\_\_\_\_

Photographs Taken: Yes \_\_\_\_ No \_\_\_\_ If Yes, Located at: \_\_\_\_\_

Regulatory Agencies Notified: Yes \_\_\_\_ No \_\_\_\_ If Yes, which: \_\_\_\_\_

Point of Contact: \_\_\_\_\_ Date and Time: \_\_\_\_/\_\_\_\_/\_\_\_\_ \_\_\_\_ AM PM

Corrective Actions Taken or Recommended: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Report Prepared By: \_\_\_\_\_ Signature: \_\_\_\_\_

**SUXO/PROJECT MANAGER**

Corrective Actions/Recommendations: \_\_\_\_\_

SUXO Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Concur With Actions Taken: Yes \_\_\_\_ No \_\_\_\_ Remarks: \_\_\_\_\_

Project Manager Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Is ENG Form 3394 to be submitted? Yes \_\_\_\_\_ No \_\_\_\_\_ If Yes, Dated: \_\_\_\_/\_\_\_\_/\_\_\_\_

For Safety Staff Only	Report No.	EROC Code	<b>UNITED STATES ARMY CORPS OF ENGINEERS</b> <b>ACCIDENT INVESTIGATION REPORT</b> (For use of this form, see help menu and USACE supplement to AR 385-40)		Requirement Control Symbol: CEEC-S-8-(R2)
<b>1. ACCIDENT CLASSIFICATION</b>					
Personnel Classification		Injury/Illness/Fatal	Property Damage	Motor Vehicle Involved	Diving
Government <input type="checkbox"/> Civilian <input type="checkbox"/> Military		<input type="checkbox"/>	<input type="checkbox"/> Fire Involved <input type="checkbox"/> Other	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Contractor		<input type="checkbox"/>	<input type="checkbox"/> Fire Involved <input type="checkbox"/> Other	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Public		<input type="checkbox"/> Fatal <input type="checkbox"/> Other		<input type="checkbox"/>	
<b>2. PERSONAL DATA</b>					
a. Name (Last, First, MI)		b. Age	c. Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	d. Social Security Number	e. Grade
f. Job Series/Title		g. Duty Status at Time of Accident <input type="checkbox"/> On Duty <input type="checkbox"/> TDY <input type="checkbox"/> Off Duty		h. Employment Status at Time of Accident <input type="checkbox"/> Army Active <input type="checkbox"/> Army Reserve <input type="checkbox"/> Volunteer <input type="checkbox"/> Permanent <input type="checkbox"/> Foreign National <input type="checkbox"/> Seasonal <input type="checkbox"/> Temporary <input type="checkbox"/> Student <input type="checkbox"/> Other (specify)	
<b>3. GENERAL INFORMATION</b>					
a. Date of Accident (month/day/year)		b. Time of Accident (military time) hrs		c. Exact Location of Accident	
e. Contract Number  <input type="checkbox"/> Civil Works <input type="checkbox"/> Military <input type="checkbox"/> Other (specify)		f. Type of Contract <input type="checkbox"/> Construction <input type="checkbox"/> Service <input type="checkbox"/> A/E <input type="checkbox"/> Dredge <input type="checkbox"/> Other (specify)		g. Hazardous/Toxic Waste Activity <input type="checkbox"/> SuperFund <input type="checkbox"/> DERP <input type="checkbox"/> IRP <input type="checkbox"/> Other (specify)	
d. Contractor's Name 1) Prime:  2) Subcontractor:					
<b>4. CONSTRUCTION ACTIVITIES ONLY</b> (Fill in time and corresponding code number in box from list – see help menu)					
a. Construction Activity Code #			b. Type of Construction Equipment Code #		
<b>5. INJURY/ILLNESS INFORMATION</b> (Include name and corresponding code number in box for items e, f, g – see help menu)					
a. Severity of Illness/Injury Code #			b. Estimated Days Lost	c. Estimated Days Hospitalized	d. Estimated Days Restricted Duty
e. Body Part Affected Primary Code #  Secondary Code #			g. Type and Source of Injury/Illness Type Code #  Source Code #		
f. Nature of Illness/Injury Code #					
<b>6. PUBLIC FATALITY</b> (Fill in line and corresponding code number in box – see help menu)					
a. Activity at Time of Accident Code #			b. Personal Flotation Device Used? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
<b>7. MOTOR VEHICLE ACCIDENT</b>					
a. Type of Vehicle	b. Type of Collision		c. Seat Belts	Used	Not Used
<input type="checkbox"/> Pickup/Van <input type="checkbox"/> Truck <input type="checkbox"/> Automobile <input type="checkbox"/> Other (specify)	<input type="checkbox"/> Side Swipe <input type="checkbox"/> Head On <input type="checkbox"/> Rear End <input type="checkbox"/> Broadside <input type="checkbox"/> Roll Over <input type="checkbox"/> Backing <input type="checkbox"/> Other (specify)		1) Front Seat <input type="checkbox"/>		
			2) Rear Seat <input type="checkbox"/>		
<b>8. PROPERTY/MATERIAL INVOLVED</b>					
a. Name of Item		b. Ownership		c. \$ Amount of Damage	
1)					
2)					
3)					
<b>9. VESSEL/FLOATING PLANT ACCIDENT</b> (Fill in line and corresponding code number in box from list – see help menu)					
a. Type of Vessel/Floating Plant Code #			b. Type of Collision/Mishap Code #		
<b>10. ACCIDENT DESCRIPTION</b> (Use additional paper, if necessary)					

<b>11. CAUSAL FACTOR(S)</b> (Read instructions before completing)				
a. (Explain YES answers in item 13)	YES	NO	(Continued)	YES NO
DESIGN: Was design of facility, workplace or equipment a factor?	<input type="checkbox"/>	<input type="checkbox"/>	CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents such as dust, fumes, mists, vapors or physical agents, such as noise, radiation, etc., contribute to the accident?	<input type="checkbox"/> <input type="checkbox"/>
INSPECTION/MAINTENANCE: Were inspection and maintenance procedures a factor?	<input type="checkbox"/>	<input type="checkbox"/>	OFFICE FACTORS: Did office settings such as lifting office furniture, carrying, stooping, etc., contribute to the accident?	<input type="checkbox"/> <input type="checkbox"/>
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	<input type="checkbox"/>	<input type="checkbox"/>	SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	<input type="checkbox"/> <input type="checkbox"/>
OPERATING PROCEDURES: Were operating procedures a factor?	<input type="checkbox"/>	<input type="checkbox"/>	DRUGS/ALCOHOL: In your opinion, were drugs or alcohol factor in the accident?	<input type="checkbox"/> <input type="checkbox"/>
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	<input type="checkbox"/>	<input type="checkbox"/>	b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?  <input type="checkbox"/> YES (If yes, attach a copy) <input type="checkbox"/> NO	
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	<input type="checkbox"/>	<input type="checkbox"/>		
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	<input type="checkbox"/>	<input type="checkbox"/>		
<b>12. TRAINING</b>				
a. Was Person Trained to Perform Activity/Task? <input type="checkbox"/> Yes <input type="checkbox"/> No	b. Type of Training. <input type="checkbox"/> Classroom <input type="checkbox"/> On Job		c. Date of Most Recent Formal Training. (month/day/year)	
<b>13. Fully explain what allowed or caused the accident, include direct and indirect causes.</b> (See instruction for definition of direct and indirect causes.)				
a. Direct Cause				
b. Indirect Cause(s)				
<b>14. ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).</b>				
Describe fully:				
<b>15. DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.</b>				
a. Beginning (month/day/year)		b. Anticipated Completion (month/day/year)		
c. Signature and Title of Supervisor completing Report Corps Contractor	d. Date (month/day/year)	Organization Identifier (Div/Branch/Sect)	f. Office Symbol	
<b>16. MANAGEMENT REVIEW</b>				
a. <input type="checkbox"/> Concur    b. <input type="checkbox"/> Non- Concur    c. <input type="checkbox"/> Comments				
Signature		Title	Date	
<b>17. MANAGEMENT REVIEW (2<sup>nd</sup> – Chief Operations, Construction, Engineering, etc.)</b>				
a. <input type="checkbox"/> Concur    b. <input type="checkbox"/> Non- Concur    c. <input type="checkbox"/> Comments				
Signature		Title	Date	
<b>18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW</b>				
a. <input type="checkbox"/> Concur    b. <input type="checkbox"/> Non- Concur    c. <input type="checkbox"/> Additional Actions/Comments				
Signature		Title	Date	
<b>19. COMMAND APPROVAL</b>				
Comments				
Commander Signature			Date	

<b>10.</b>	<b>ACCIDENT DESCRIPTION</b> (Continuation)
<b>13 a.</b>	<b>DIRECT CAUSE</b> (Continuation)
<b>13 b.</b>	<b>INDIRECT CAUSES</b> (Continuation)
<b>14.</b>	<b>ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S)</b> (Continuation)

**RECORD  
OF  
SAFETY VIOLATION OR NON-COMPLIANCE**

Employee Name: \_\_\_\_\_

Position: \_\_\_\_\_

Site / Location: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Type of Violation: \_\_\_\_ PPE \_\_\_\_ Procedural \_\_\_\_ Explosive \_\_\_\_ Equipment \_\_\_\_ Other

Type of Non-Compliance: \_\_\_\_ Policy \_\_\_\_ Procedural \_\_\_\_ Directive \_\_\_\_ Contract  
\_\_\_\_ Other

Description of Violation or Non-Compliance:

\_\_\_\_\_

\_\_\_\_\_

Document Reference (Specify document, page, paragraph, etc. as applicable):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective Action(s) to be taken:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Employee or Company Response and Comments:

\_\_\_\_\_

\_\_\_\_\_

Notification made to:

Manager: \_\_\_\_ Yes \_\_\_\_ No

Date:

SUXOS: \_\_\_\_ Yes \_\_\_\_ No

Date:

Supervisor: \_\_\_\_ Yes \_\_\_\_ No

Date:

Corrective Actions Inspection Required: \_\_\_\_ Yes \_\_\_\_ No

If Yes, Date of Inspection: \_\_\_\_/\_\_\_\_/\_\_\_\_

Signature: \_\_\_\_\_  
Safety Officer

Signature: \_\_\_\_\_  
Employee/Company Representative

## SAFETY INSPECTION REPORT

Site / Location: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Type of Inspection: \_\_\_\_ Daily \_\_\_\_ Weekly \_\_\_\_ Re-Inspection \_\_\_\_ Other

Type of Operation Inspected:

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Equipment Inspected: (Specify if Safety or Operational in Nature)

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Comments:

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Deficiencies Found or Noted:

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Corrective Action:

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Re-Inspection Required: \_\_\_\_ Yes \_\_\_\_ No

If Yes, Date of Re-Inspection: \_\_\_\_/\_\_\_\_/\_\_\_\_

Signature: \_\_\_\_\_  
Site Safety Officer

\_\_\_\_\_  
SUXO / Project Manager

\* Copy to Supervisor if Deficiencies or Corrective Action were found, noted or deemed necessary.

## USA Environmental, Inc.

<b>SAFETY MEETING/TRAINING RECORD</b>	
<b>DATE:</b> ____/____/____	<b>TIME:</b> _____ AM PM
<b>LOCATION/SITE:</b> _____	

**TIME:** \_\_\_\_\_ AM PM

**LOCATION/SITE:** \_\_\_\_\_

1. Reason for Meeting/Training: (Check all that apply)	
	<b>Daily Safety Meeting/Training</b>
	<b>Initial Site Safety Meeting/Training</b>
	<b>New Task Briefing</b>
	<b>Periodic Safety Meeting/Training</b>
	<b>New Site Procedures</b>
	<b>New Site Information</b>
	<b>Periodic Review of Site Information</b>
	<b>Other (Explain):</b>

**Other (Explain):**

[illegible]

## Company

## USA Environmental Inc.

### Safety Meeting/Training Record Cont.:

#### 3. Topics Covered (Check all that apply)

<input type="checkbox"/>	Site Safety Personnel	<input type="checkbox"/>	Decontamination Procedures
<input type="checkbox"/>	Site/Work Area Description	<input type="checkbox"/>	Emergency Response Plan
<input type="checkbox"/>	Site Characterization	<input type="checkbox"/>	Hazard Communication
<input type="checkbox"/>	Biological Hazard(s)	<input type="checkbox"/>	On-Site Emergency
<input type="checkbox"/>	Chemical Hazard(s)	<input type="checkbox"/>	On-Site Injuries/Illnesses
<input type="checkbox"/>	Physical Hazard(s)	<input type="checkbox"/>	Evacuation Procedures
<input type="checkbox"/>	Heat Stress	<input type="checkbox"/>	Rally Point(s)
<input type="checkbox"/>	Cold Stress	<input type="checkbox"/>	Emergency Communication
<input type="checkbox"/>	Site Control	<input type="checkbox"/>	Directions to Medical Facility
<input type="checkbox"/>	Work and Support Zones	<input type="checkbox"/>	Drug and Alcohol Policies
<input type="checkbox"/>	PPE	<input type="checkbox"/>	Medical Monitoring Program
<input type="checkbox"/>	Air monitoring	<input type="checkbox"/>	Specific Task Training
<input type="checkbox"/>	Safe Work Practices	<input type="checkbox"/>	Confined Spaces
<input type="checkbox"/>	Engineering Controls and Equipment	<input type="checkbox"/>	Heavy Equipment
<input type="checkbox"/>	Spill Containment Procedures	<input type="checkbox"/>	Other: (Specify)
<input type="checkbox"/>	MEC Hazard(s)	<input type="checkbox"/>	

#### 4. Remarks:


#### 5. Verification:

*I certify that the personnel listed above on this record received the Information and/or Training described as indicated. Personnel not attending this meeting/training will receive said information/training prior to commencing their assigned duties.*

\_\_\_\_\_  
Site Safety Officer

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_



## SITE VISITOR LOG

[illegible]



## **APPENDIX E**

### **E.0 MUNITIONS CONSTITUENTS SAMPLING AND ANALYSIS PLAN**

In accordance with the Statement of Work, this plan is not required.

## APPENDIX F

### F.0 CONTRACTOR FORMS

This appendix contains the following contractor forms for the Munitions Removal Actions at the Live Impact Area in the Former Vieques Naval Training Range, located on Vieques Island, Puerto Rico.

- U.S. Army Corps of Engineers Accident Investigation Report (ENG Form 3394)
- Daily Operations Summary
- Employee Injury Report
- Explosive Usage Record
- Form DD1348-1A
- Record of Safety Violation or Non-Compliance
- Safety Inspection Report
- Safety Meeting/Training Record
- Site Visitor Log
- Tailgate Safety Briefing
- Weekly Operations Summary
- Weekly Vehicle Inspection Sheet

#### Quality Control Forms

- Daily Quality Control Report
- Form 10-2: Preparatory Inspection Checklist
- Form 10-3: Initial Phase Checklist
- Form 10-4: Follow Up Checklist
- Form 10-5: Final Inspection Checklist
- Form 10-8: Corrective Action Request
- Form 10-9: Corrective Action Plan
- Form 10-10: Weekly Quality Control Report
- Quality Control Inspection Record

<i>(For Safety Staff only)</i>	REPORT NO.	EROC CODE	<b>UNITED STATES ARMY CORPS OF ENGINEERS ACCIDENT INVESTIGATION REPORT</b> <i>(For Use of this Form See Help Menu and USACE Suppl to AR 385-40)</i>			<b>REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)</b>
<b>1. ACCIDENT CLASSIFICATION</b>						
PERSONNEL CLASSIFICATION		INJURY/ILLNESS/FATAL		PROPERTY DAMAGE		MOTOR VEHICLE INVOLVED
GOVERNMENT <input type="checkbox"/> CIVILIAN <input type="checkbox"/> MILITARY		<input type="checkbox"/>		<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER		<input type="checkbox"/>
<input type="checkbox"/> CONTRACTOR		<input type="checkbox"/>		<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER		<input type="checkbox"/>
<input type="checkbox"/> PUBLIC		<input type="checkbox"/> FATAL <input type="checkbox"/> OTHER		X		X
<b>2. PERSONAL DATA</b>						
a. Name <i>(Last, First, MI)</i>		b. AGE	c. SEX <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE		d. SOCIAL SECURITY NUMBER	
f. JOB SERIES/TITLE		g. DUTY STATUS AT TIME OF ACCIDENT  <input type="checkbox"/> ON DUTY <input type="checkbox"/> TDY  <input type="checkbox"/> OFF DUTY		h. EMPLOYMENT STATUS AT TIME OF ACCIDENT <input type="checkbox"/> ARMY ACTIVE <input type="checkbox"/> ARMY RESERVE <input type="checkbox"/> VOLUNTEER <input type="checkbox"/> PERMANENT <input type="checkbox"/> FOREIGN NATIONAL <input type="checkbox"/> SEASONAL <input type="checkbox"/> TEMPORARY <input type="checkbox"/> STUDENT <input type="checkbox"/> OTHER <i>(Specify)</i> _____		
<b>3. GENERAL INFORMATION</b>						
a. DATE OF ACCIDENT <i>(month/day/year)</i>	b. TIME OF ACCIDENT <i>(Military time)</i>  hrs	c. EXACT LOCATION OF ACCIDENT				d. CONTRACTOR'S NAME  (1) PRIME:   (2) SUBCONTRACTOR:
e. CONTRACT NUMBER  <input type="checkbox"/> CIVIL WORKS <input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER <i>(Specify)</i> _____		f. TYPE OF CONTRACT <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> SERVICE <input type="checkbox"/> A/E <input type="checkbox"/> DREDGE <input type="checkbox"/> OTHER <i>(Specify)</i> _____		g. HAZARDOUS/TOXIC WASTE ACTIVITY <input type="checkbox"/> SUPERFUND <input type="checkbox"/> DERP <input type="checkbox"/> IRP <input type="checkbox"/> OTHER <i>(Specify)</i> _____		
<b>4. CONSTRUCTION ACTIVITIES ONLY <i>(Fill in line and corresponding code number in box from list - see help menu)</i></b>						
a. CONSTRUCTION ACTIVITY  _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>				b. TYPE OF CONSTRUCTION EQUIPMENT  _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>		
<b>5. INJURY/ILLNESS INFORMATION <i>(Include name on line and corresponding code number in box for items e, f &amp; g - see help menu)</i></b>						
a. SEVERITY OF ILLNESS/INJURY  _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>				b. ESTIMATED DAYS LOST	c. ESTIMATED DAYS HOSPITALIZED	d. ESTIMATED DAYS RESTRICTED DUTY
e. BODY PART AFFECTED PRIMARY _____ SECONDARY _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>				g. TYPE AND SOURCE OF INJURY/ILLNESS  TYPE _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>  SOURCE _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>		
f. NATURE OF ILLNESS/INJURY _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>						
<b>6. PUBLIC FATALITY <i>(Fill in line and correspondence code number in box - see help menu)</i></b>						
a. ACTIVITY AT TIME OF ACCIDENT _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>				b. PERSONAL FLOATATION DEVICE USED? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		
<b>7. MOTOR VEHICLE ACCIDENT</b>						
a. TYPE OF VEHICLE <input type="checkbox"/> PICKUP/VAN <input type="checkbox"/> AUTOMOBILE <input type="checkbox"/> TRUCK <input type="checkbox"/> OTHER <i>(Specify)</i> _____		b. TYPE OF COLLISION <input type="checkbox"/> SIDE SWIPE <input type="checkbox"/> HEAD ON <input type="checkbox"/> REAR END <input type="checkbox"/> BROADSIDE <input type="checkbox"/> ROLL OVER <input type="checkbox"/> BACKING <input type="checkbox"/> OTHER <i>(Specify)</i> _____		c. SEAT BELTS	USED	NOT USED
				(1) FRONT SEAT		
				(2) REAR SEAT		
<b>8. PROPERTY/MATERIAL INVOLVED</b>						
a. NAME OF ITEM		b. OWNERSHIP			c. \$ AMOUNT OF DAMAGE	
(1)						
(2)						
(3)						
<b>9. VESSEL/FLOATING PLANT ACCIDENT <i>(Fill in line and correspondence code number in box from list - see help menu)</i></b>						
a. TYPE OF VESSEL/FLOATING PLANT _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>				b. TYPE OF COLLISION/MISHAP _____ (CODE) # <span style="border: 1px solid black; padding: 0 10px;"> </span>		
<b>10. ACCIDENT DESCRIPTION <i>(Use additional paper, if necessary)</i></b>						

<b>11. CAUSAL FACTOR(S) (Read Instruction Before Completing)</b>					
<b>a. (Explain YES answers in item 13)</b>  <div style="display: flex; justify-content: space-between;"> <div style="width: 80%;"> <p>DESIGN: Was design of facility, workplace or equipment a factor? <input type="checkbox"/></p> <p>INSPECTION/MAINTENANCE: Were inspection &amp; maintenance procedures a factor? <input type="checkbox"/></p> <p>PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor? <input type="checkbox"/></p> <p>OPERATING PROCEDURES: Were operating procedures a factor? <input type="checkbox"/></p> <p>JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred? <input type="checkbox"/></p> <p>HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident? <input type="checkbox"/></p> <p>ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident? <input type="checkbox"/></p> </div> <div style="width: 15%; text-align: center;"> <p>YES</p><p>NO</p> </div> </div>		<b>a. (CONTINUED)</b>  <div style="display: flex; justify-content: space-between;"> <div style="width: 80%;"> <p>CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident? <input type="checkbox"/></p> <p>OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident? <input type="checkbox"/></p> <p>SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task? <input type="checkbox"/></p> <p>PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident? <input type="checkbox"/></p> <p>DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident <input type="checkbox"/></p> </div> <div style="width: 15%; text-align: center;"> <p>YES</p><p>NO</p> </div> </div>		<b>b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?</b>  <div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <input type="checkbox"/> YES <i>(If yes, attach a copy.)</i> </div> <div style="width: 60%;"> <input type="checkbox"/> NO         </div> </div>	
<b>12. TRAINING</b>					
<b>a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?</b>  <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> YES           <input type="checkbox"/> NO         </div>		<b>b. TYPE OF TRAINING.</b>  <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> CLASSROOM           <input type="checkbox"/> ON JOB         </div>		<b>c. DATE OF MOST RECENT FORMAL TRAINING.</b>  <div style="text-align: center;">             (Month) (Day) (Year)           </div>	
<b>13. FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES (See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)</b>					
<b>a. DIRECT CAUSE</b>					
<b>b. INDIRECT CAUSE(S)</b>					
<b>14. ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).</b>					
<b>DESCRIBE FULLY:</b>					
<b>15. DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.</b>					
<b>a. BEGINNING (Month/Day/Year)</b>			<b>b. ANTICIPATED COMPLETION (Month/Day/Year)</b>		
<b>c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT</b> CORPS _____ CONTRACTOR _____		<b>d. DATE (Mo/Da/Yr)</b>	<b>e. ORGANIZATION IDENTIFIER (Div, Br, Sect)</b>		<b>f. OFFICE SYMBOL</b>
<b>16. MANAGEMENT REVIEW (1st)</b>					
<b>a. <input type="checkbox"/> CONCUR    b. <input type="checkbox"/> NON CONCUR    c. COMMENTS</b>					
SIGNATURE		TITLE		DATE	
<b>17. MANAGEMENT REVIEW (2nd - Chief Operations, Construction, Engineering, etc.)</b>					
<b>a. <input type="checkbox"/> CONCUR    b. <input type="checkbox"/> NON CONCUR    c. COMMENTS</b>					
SIGNATURE		TITLE		DATE	
<b>18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW</b>					
<b>a. <input type="checkbox"/> CONCUR    b. <input type="checkbox"/> NON CONCUR    c. ADDITIONAL ACTIONS/COMMENTS</b>					
SIGNATURE		TITLE		DATE	
<b>19. COMMAND APPROVAL</b>					
<b>COMMENTS</b>					
<b>COMMANDER SIGNATURE</b>				<b>DATE</b>	

<b>10.</b>	<b>ACCIDENT DESCRIPTION</b> <i>(Continuation)</i>
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<b>13a.</b>	<b>DIRECT CAUSE</b> <i>(Continuation)</i>
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**13b.**

**INDIRECT CAUSES** *(Continuation)*

**14.**

**ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S)** *(Continuation)*



## DAILY OPERATIONS SUMMARY

DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

PAGE 1 OF 5 PAGES

SITE / LOCATION: \_\_\_\_\_

### 1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total Remaining
(1) Survey	_____	_____
(2) Preparation	_____	_____
(3) Mag & Flag	_____	_____
(4) Geophysical	_____	_____
(5) Intrusive	_____	_____
(6) Quality Control	_____	_____
(7) Quality Assurance	_____	_____

b. Discrepancies: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c. Inspection Results:	Pass	Fail
(1) Quality Control	_____	_____
(2) Quality Assurance	_____	_____
(3) Safety	_____	_____

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**a. UXO Located:**

[illegible]

**b. Demolition Supplies Expended:**[illegible]

### c. Scrap Generation / Deposition:

[illegible]

**a. Daily Man-hours:**

# OPS-1 Form

**b. Daily Equipment:**

Description:	Task:	Hours Used:	Hours Remaining:	% Hours Remaining:	Remarks:

**5. Operational Remarks:**

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**6. Signature / Date:**

---

**SUXOS**

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

## USA Environmental, Inc. Employee Injury Report

Site/Location: \_\_\_\_\_

Control Number: \_\_\_\_\_

*This is an official document to be initiated by USA supervisors. Be accurate, thorough, and answer all questions.*

### BACKGROUND DATA

Todays Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Date of Accident: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_ AM PM

Day of Accident: S M T W T F S Weather Conditions: Sunny Clear Rain Fog Overcast

Temperature: 0-32 32-50 50-70 70-85 85 + Wind Conditions: Still Moderate High None

Location of Accident: \_\_\_\_\_ Time Accident was Reported: \_\_\_\_ AM PM

\_\_\_\_\_  
Reported to Whom: \_\_\_\_\_

### PERSONAL DATA

Name: Last \_\_\_\_\_ First \_\_\_\_\_ MI \_\_\_\_\_

Sex: F M DOB: \_\_\_\_/\_\_\_\_/\_\_\_\_ Place of Birth: \_\_\_\_\_

SSAN: \_\_\_\_-\_\_\_\_-\_\_\_\_ DOH: \_\_\_\_/\_\_\_\_/\_\_\_\_ Position: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_

Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_ Zip: \_\_\_\_\_

### ACCIDENT DATA

Nature of Accident: Near Miss \_\_\_\_ 1<sup>st</sup> Aid \_\_\_\_ Dr Visit \_\_\_\_ Ambul \_\_\_\_ Hospitalized \_\_\_\_ Fatality \_\_\_\_

If Fatality, Name of Agency Notified: \_\_\_\_\_ Type of Injury: \_\_\_\_\_

Did Employee Leave the Work Site: Yes \_\_\_\_ No \_\_\_\_ If Yes, Time Departed: \_\_\_\_ AM PM

Name of Medical Facility: \_\_\_\_\_ Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

Description of Accident: \_\_\_\_\_

Activity at Time of Accident: \_\_\_\_\_

**Employee Injury Report Con't.****WITNESS DATA**

Witness Name: Last \_\_\_\_\_ First \_\_\_\_\_ MI \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_ Employed By: \_\_\_\_\_

Statement Attached: Yes \_\_\_\_ No \_\_\_\_ Telephone Number: (\_\_\_\_) \_\_\_\_-\_\_\_\_

**ACCIDENT ACTIONS/ANALYSIS**Accident Cause(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Lack of Safety Equipment a Factor: Yes \_\_\_\_ No \_\_\_\_ If Yes, Explain: \_\_\_\_\_  
\_\_\_\_\_Safety Regulations or Guidance Violated: Yes \_\_\_\_ No \_\_\_\_ If Yes, Explain: \_\_\_\_\_  
\_\_\_\_\_

Photographs Taken: Yes \_\_\_\_ No \_\_\_\_ If Yes, Located at: \_\_\_\_\_

Regulatory Agencies Notified: Yes \_\_\_\_ No \_\_\_\_ If Yes, which: \_\_\_\_\_

Point of Contact: \_\_\_\_\_ Date and Time: \_\_\_\_/\_\_\_\_/\_\_\_\_ \_\_\_\_ AM PM

Corrective Actions Taken or Recommended: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Report Prepared By: \_\_\_\_\_ Signature: \_\_\_\_\_

**SUXO/PROJECT MANAGER**

Corrective Actions/Recommendations: \_\_\_\_\_

SUXO Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Concur With Actions Taken: Yes \_\_\_\_ No \_\_\_\_ Remarks: \_\_\_\_\_

Project Manager Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

EXPLOSIVE USAGE RECORD								Contract Number: _____	
Team Number: _____		Date: _____		Project Name: _____					
Team Leader: _____		Work area/Grid Number: _____							
EXPLOSIVES	LOT NUMBER	QUANTITIES						Signatures	
		Issued	Initials	Used	Initials	Returned	Initials	Team Leader	Checker

Reviewed and Accepted: \_\_\_\_\_  
Senior UXO Supervisor

Date: \_\_\_\_\_



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PREVIOUS EDITION MAY BE USED

PerFORM (DLA)

**RECORD  
OF  
SAFETY VIOLATION OR NON-COMPLIANCE**

Employee Name: \_\_\_\_\_

Position: \_\_\_\_\_

Site / Location: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Type of Violation: \_\_\_\_ PPE \_\_\_\_ Procedural \_\_\_\_ Explosive \_\_\_\_ Equipment \_\_\_\_ Other

Type of Non-Compliance: \_\_\_\_ Policy \_\_\_\_ Procedural \_\_\_\_ Directive \_\_\_\_ Contract  
\_\_\_\_ Other

Description of Violation or Non-Compliance:

\_\_\_\_\_

\_\_\_\_\_

Document Reference ( Specify document, page, paragraph, etc. as applicable ):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective Action(s) to be taken:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Employee or Company Response and Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Notification made to:

Manager: \_\_\_\_ Yes \_\_\_\_ No

Date:

SUXOS: \_\_\_\_ Yes \_\_\_\_ No

Date:

Supervisor: \_\_\_\_ Yes \_\_\_\_ No

Date:

Corrective Actions Inspection Required: \_\_\_\_ Yes \_\_\_\_ No

If Yes, Date of Inspection: \_\_\_\_/\_\_\_\_/\_\_\_\_

Signature: \_\_\_\_\_  
Safety Officer

Signature: \_\_\_\_\_  
Employee/Company Representative

# **SAFETY INSPECTION REPORT**

**USA Environmental, Inc.**

Site / Location: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Type of Inspection: \_\_\_\_ Daily      \_\_\_\_ Weekly      \_\_\_\_ Re-Inspection      \_\_\_\_ Other

Type of Operation Inspected:

\_\_\_\_\_  
\_\_\_\_\_

Equipment Inspected: (Specify if Safety or Operational in Nature)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Deficiencies Found or Noted:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective Action:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Re-Inspection Required: \_\_\_\_ Yes      \_\_\_\_ No If Yes, Date of Re-Inspection: \_\_\_\_/\_\_\_\_/\_\_\_\_

Signature: \_\_\_\_\_

UXOSO/Site Safety Officer

\_\_\_\_\_  
\_\_\_\_\_

SUXOS/Project Manager

\* Copy to Supervisor if Deficiencies or Corrective Action were found, noted or deemed necessary.

**USA Environmental, Inc.**

<b>SAFETY MEETING/TRAINING RECORD</b>	
<b>DATE:</b> ____/____/____	<b>TIME:</b> _____ AM PM
<b>LOCATION/SITE:</b> _____	

**TIME:** \_\_\_\_\_ AM PM

**LOCATION/SITE:** \_\_\_\_\_

1. Reason for Meeting/Training: (Check all that apply)	
	Daily Safety Meeting/Training
	Initial Site Safety Meeting/Training
	New Task Briefing
	Periodic Safety Meeting/Training
	New Site Procedures
	New Site Information
	Periodic Review of Site Information
	Other (Explain):

**Other (Explain):**

[illegible]

## Company

## USA Environmental Inc.

### Safety Meeting/Training Record Con't:

#### 3. Topics Covered (Check all that apply)

<input type="checkbox"/>	Site Safety Personnel	<input type="checkbox"/>	Decontamination Procedures
<input type="checkbox"/>	Site/Work Area Description	<input type="checkbox"/>	Emergency Response Plan
<input type="checkbox"/>	Site Characterization	<input type="checkbox"/>	Hazard Communication
<input type="checkbox"/>	Biological Hazard(s)	<input type="checkbox"/>	On-Site Emergency
<input type="checkbox"/>	Chemical Hazard(s)	<input type="checkbox"/>	On-Site Injuries/Illnesses
<input type="checkbox"/>	Physical Hazard(s)	<input type="checkbox"/>	Evacuation Procedures
<input type="checkbox"/>	Heat Stress	<input type="checkbox"/>	Rally Point(s)
<input type="checkbox"/>	Cold Stress	<input type="checkbox"/>	Emergency Communication
<input type="checkbox"/>	Site Control	<input type="checkbox"/>	Directions to Medical Facility
<input type="checkbox"/>	Work and Support Zones	<input type="checkbox"/>	Drug and Alcohol Policies
<input type="checkbox"/>	PPE	<input type="checkbox"/>	Medical Monitoring Program
<input type="checkbox"/>	Air monitoring	<input type="checkbox"/>	Specific Task Training
<input type="checkbox"/>	Safe Work Practices	<input type="checkbox"/>	Confined Spaces
<input type="checkbox"/>	Engineering Controls and Equipment	<input type="checkbox"/>	Heavy Equipment
<input type="checkbox"/>	Spill Containment Procedures	<input type="checkbox"/>	Other: (Specify)
<input type="checkbox"/>		<input type="checkbox"/>	

#### 4. Remarks:


#### 5. Verification:

*I certify that the personnel listed above on this record received the Information and/or Training described as indicated. Personnel not attending this meeting/training will receive said information/training prior to commencing their assigned duties.*

\_\_\_\_\_  
Site Safety Officer

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

## SITE VISITORS LOG

**Project Location:** \_\_\_\_\_

**Month of:** \_\_\_\_\_

[illegible]



## WEEKLY OPERATIONS SUMMARY

DATE: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

PAGE \_\_\_\_ OF \_\_\_\_ PAGES

SITE / LOCATION: \_\_\_\_\_

### 1. WORK SUMMARY

a. Work Accomplished:	Number Completed	Total
(1) Survey	_____	_____
(2) Preparation	_____	_____
(3) Mag & Flag	_____	_____
(4) Geophysical	_____	_____
(5) Intrusive	_____	_____
(6) Quality Control	_____	_____
(7) Quality Assurance	_____	_____

b. Discrepancies: \_\_\_\_\_

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c. Inspection Results:	Pass	Fail
(1) Quality Control	_____	_____
(2) Quality Assurance	_____	_____
(3) Safety	_____	_____

2. INSTRUCTIONS RECEIVED FROM CUSTOMER REPRESENTATIVE: \_\_\_\_\_

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### 3. UXO SUMMARY

**a. UXO Located:**

[illegible]

**b. Demolition Supplies Expended:**[illegible]

### c. Scrap Generation / Deposition:

[illegible]

**a. Weekly Man-hours:**

[illegible]

**b. Weekly Equipment:**

Description:	Task:	Hours Used:	Total Hours Used:	Hours Remaining:	% Hours Remaining:
Schonstedt					
Geophysical					
Truck (Heavy)					
Truck (Light)					
Radio, Base					
Radio, Handheld					
Backhoe					
Front-end Loader					
Rental Car					
GPS					
Weedeater					
Chainsaw					
Chipper					

**5. Remarks:**

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**6. Signature / Date:**

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**SUXO / Project Manager**

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**USA Environmental, Inc.**  
**WEEKLY VEHICLE INSPECTION SHEET**

Team \_\_\_\_\_ Team Leader \_\_\_\_\_

Week Ending \_\_\_\_\_

Date \_\_\_\_\_ Wk. Total \_\_\_\_\_

Starting Milage	_____	_____	_____	_____	_____	_____
Ending Milage	_____	_____	_____	_____	_____	_____
Total Milage	_____	_____	_____	_____	_____	_____

Vehicle Condition

Fuel	(F, 3/4, 1/2, 1/4, E)	_____	_____	_____	_____	_____
Oil	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Tires	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Lights	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Horn	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Wipers	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Steering	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Mirrors	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Fire Extinguisher/s	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Emergency Flashers	Sat (S), Unsat (U)	_____	_____	_____	_____	_____
Body Damage (Explain Below)	Sat (S), Unsat (U)	_____	_____	_____	_____	_____

Initials \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Submitted: \_\_\_\_\_

(Print)

\_\_\_\_\_  
Signature/Date

**USA Environmental, Inc.**

**DAILY QUALITY CONTROL REPORT**

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_ **Contract #:** \_\_\_\_\_ **Task Order #:** \_\_\_\_\_

**Site/Location :** \_\_\_\_\_

**Weather:** \_\_\_\_\_ **Temperature:** \_\_\_\_\_ **Rainfall:** \_\_\_\_\_

**1. Preparatory Inspection:** \_\_\_\_\_

\_\_\_\_\_

Results: \_\_\_\_\_

**2. QC Audits Performed**

a. Operations: \_\_\_\_\_

\_\_\_\_\_

Results: \_\_\_\_\_

b. Safety: \_\_\_\_\_

\_\_\_\_\_

Results: \_\_\_\_\_

c. Administrative: \_\_\_\_\_

\_\_\_\_\_

Results: \_\_\_\_\_

d. Equipment: \_\_\_\_\_

\_\_\_\_\_

Results: \_\_\_\_\_

\_\_\_\_\_

**Daily Quality Control Report Con't:**

**3. QC Performed (Grids)**

Number of Grids QC'd: \_\_\_\_\_ Results: \_\_\_\_\_ # Pass \_\_\_\_\_ # Fail

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**4. Follow Up Inspections and Results**

Section(s): \_\_\_\_\_

\_\_\_\_\_

Results: \_\_\_\_\_

\_\_\_\_\_

**5. Instructions Received:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Remarks:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**QC Signature:** \_\_\_\_\_

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Printed Name:** \_\_\_\_\_

**FORM 10-2**  
**PREPARATORY INSPECTION CHECKLIST**  
**(PART I)**

**Contract: N62470-02-D-3052/CTO-0047**

Date: \_\_\_\_\_

Title and No. of Technical Section: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**A. Planned Attendees:**

	<u>Name</u>	<u>Position</u>	<u>Company</u>
1)	_____	_____	_____
2)	_____	_____	_____
3)	_____	_____	_____
4)	_____	_____	_____
5)	_____	_____	_____
6)	_____	_____	_____
7)	_____	_____	_____
8)	_____	_____	_____
9)	_____	_____	_____
10)	_____	_____	_____
11)	_____	_____	_____

**B. Submittals required to begin work:**

	<u>Item</u>	<u>Submittal No.</u>	<u>Action Code</u>
1)	_____	_____	_____
2)	_____	_____	_____
3)	_____	_____	_____
4)	_____	_____	_____
5)	_____	_____	_____
6)	_____	_____	_____
7)	_____	_____	_____
8)	_____	_____	_____



**FORM 10-2**

**PREPARATORY INSPECTION CHECKLIST  
(PART I)**

C. Equipment to be used in executing work:

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_

D. Work areas examined to ascertain that all preliminary work has been completed:

---

---

E. Methods and procedures for performing Quality Control, including specific testing requirements:

---

---

The above methods and procedures have been identified from the project plans and will be performed as specified for the Definable Feature of Work.

---

Contractor Quality Control Systems Manager

## PREPARATORY INSPECTION CHECKLIST (PART II)

- 
- This image shows a full page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice or general writing. There are no margins, text, or other markings on the page.

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Technical Representative

**FORM 10-3**  
**INITIAL PHASE CHECK LIST**

**Contract No.: N62470-02-D-3052/CTO-0047**

Date: \_\_\_\_\_

Title and No. of Technical Section: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Description and Location of Work Inspected: \_\_\_\_\_

**A. Key Personnel Present:**

	<u>Name</u>	<u>Position</u>	<u>Company</u>
1)	_____	_____	_____
2)	_____	_____	_____
3)	_____	_____	_____
4)	_____	_____	_____
5)	_____	_____	_____

**B. Materials being used are in strict compliance with the contract plans and specifications:** Yes \_\_\_\_ No \_\_\_\_

If not, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**C. Procedures and/or work methods witnessed are in strict compliance with the contract specifications:** Yes \_\_\_\_ No \_\_\_\_

If not, explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. Workmanship is acceptable:** Yes \_\_\_\_ No \_\_\_\_

State where improvement is needed: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**E. Workmanship is free of safety violations:** Yes \_\_\_\_ No \_\_\_\_

If no, corrective action taken: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
UXOQCS

**FORM 10-4**

**FOLLOW UP CHECKLIST**

Date:

Contractor:

Contract No: **N62470-02-D-3052/CTO-0047**

<b>Y=YES; N=NO; SEE REMARKS BLANK=NOT APPLICABLE</b>	
<b>WORK COMPLIES WITH CONTRACT AS APPROVED IN INITIAL PHASE</b>	

**IDENTIFY DEFINABLE FEATURE OF WORK, LOCATION, AND LIST PERSONNEL PRESENT**


**TESTING PERFORMED & WHO PERFORMED TEST (Include number of samples and/or tests taken)**


**QA Representative**

**Date**

**UXOQCS**

**Date**

**FORM 10-5**  
**FINAL INSPECTION CHECKLIST**  
**(PART I)**

**Contract No.: N62470-02-D-3052/CTO-0047**

Date: \_\_\_\_\_

Project / Area of Inspection: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

A. Definable Features of Work:	Status of Inspection:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

I hereby certify, that to the best of my knowledge and belief, that the work inspected is complete and all materials and equipment used and work performed were completed in accordance with plans submitted and approved.

\_\_\_\_\_  
Contractor Quality Control Systems Manager

B. Final Acceptance is Approved, Subject to the Correction of the Punchlist Items Below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## FINAL INSPECTION CHECKLIST (PART I) (CONTINUED)

- 
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UXOQCS

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Technical Representative

**FORM 10-5**

**FINAL INSPECTION CHECKLIST  
(PART II)**

**MEETING ATTENDANCE LIST**

<b>Meeting:</b>		<b>Date:</b>
<b>Name</b>	<b>Organization</b>	<b>Phone Number</b>

**FORM 10-8**  
**CORRECTIVE ACTION REQUEST**

(1)Page 1 of 2

(2) CAR #:	(3) PRIORITY: <input type="checkbox"/> HIGH <input type="checkbox"/> NORMAL	(4) DATE PREPARED:
------------	-----------------------------------------------------------------------------	--------------------

**PART A: NOTICE OF DEFICIENCY**

(5) PROJECT:		
(6) PROJECT MANAGER:	(7) UXOQCS:	
(8) WORK UNIT:	(9) WORK UNIT MANAGER:	
(10) ISSUED TO (INDIVIDUAL & ORGANIZATION):		
(11) REQUIREMENT & REFERENCE:		
(12) PROBLEM DESCRIPTION & LOCATION:		
(13) CAP REQUIRED? <input type="checkbox"/> YES <input type="checkbox"/> NO		
(14) RESPONSE DUE:		
(15) ISSUED BY (PRINTED NAME & TITLE):		(16) MANAGEMENT CONCURRENCE:
SIGNATURE: <span style="float: right;">DATE:</span>		

**PART B: CORRECTIVE ACTION**

(17) PROPOSED CORRECTIVE ACTION/ACTION TAKEN:	
NOTE: SUPPORTING DOCUMENTATION MUST BE LISTED ON THE BACK OF THIS FORM AND ATTACHED.	
(18) PART B COMPLETED BY (NAME & TITLE):	(19) QC CONCURRENCE:
SIGNATURE: <span style="float: right;">DATE:</span>	

**PART C: CORRECTIVE ACTION VERIFICATION**

(20) CAR VERIFICATION AND CLOSE-OUT: (CHECK ONLY ONE & EXPLAIN STIPULATIONS, IF ANY)	
<input type="checkbox"/> APPROVED FOR CLOSURE WITHOUT STIPULATIONS	
<input type="checkbox"/> APPROVED FOR CLOSURE WITH FOLLOWING STIPULATIONS	
COMMENTS/STIPULATIONS:	
(21) CLOSED BY (PRINTED NAME & TITLE):	
SIGNATURE: <span style="float: right;">DATE:</span>	



## CORRECTIVE ACTION REQUEST (CAR) INSTRUCTION SHEET

- (1) **UXOQCS:** Verify that the total number of pages includes all attachments.
- (2) **UXOQCS:** Fill in CAR number from CAR log.
- (3) **UXOQCS:** Fill in appropriate priority category. **High** priority indicates resolution of deficiency requires expediting corrective action plan and correction of deficient conditions noted in the CAR and extraordinary resources may be required due to the deficiency's impact on continuing operations. **Normal** priority indicates that the deficiency resolution process may be accomplished without further impacting continuing operations.
- (4) **CAR Requestor:** Fill in date CAR is initiated.
- (5) **CAR Requestor:** Identify project name, number, CTO, and WAD.
- (6) **CAR Requestor:** Identify Project Manager
- (7) **CAR Requestor:** Identify CQC System Manager.
- (8) **CAR Requestor:** Identify project organization, group, or discrete work environment where deficiency was first discovered.
- (9) **CAR Requestor:** Identify line manager responsible for work unit where deficiency was discovered.
- (10) **UXOQCS:** Identify responsible manager designated to resolve deficiency (this may not be work unit manager).
- (11) **CAR Requestor:** Identify source of requirement violated in contract, work planning document, procedure, instruction, etc; use exact reference to page and, when applicable, paragraph.
- (12) **CAR Requestor:** Identify problem as it relates to requirement previously stated. Identify location of work activities impacted by deficiency.
- (13) **UXOQCS:** Identify if Corrective Action Plan (CAP) is required. CAP is typically required where one or more of the following conditions apply: CAR priority is **High**; deficiency requires a rigorous corrective action planning process to identify similar work product or activities affected by the deficiency; or deficiency requires extensive resources and planning to correct the deficiency and to prevent future recurrence.
- (14) **UXOQCS:** Identify date by which proposed corrective action is due to QC for concurrence.
- (15) **UXOQCS:** Sign and date CAR and forward to responsible manager identified in (10) above.
- (16) **Responsible Manager:** Initial to acknowledge receipt of CAR.
- (17) **Responsible Manager:** Complete corrective action plan and identify date of correction. Typical corrective action response will include statement regarding how the condition occurred, what the extent of the problem is (if not readily apparent by the problem description statement in [12]), methods to be used to correct the condition, and actions to be taken to prevent the condition from recurring. If a CAP is required, refer to CAP only in this section.
- (18) **Responsible Manager:** Sign and date corrective action response.
- (19) **UXOQCS:** Initial to identify concurrence with corrective action response from responsible manager.
- (20) **UXOQCS:** Check appropriate block to identify if corrective action process is complete so that CAR may be closed. Add close-out comments relevant to block checked.
- (21) **UXOQCS:** Indicate document closeout by signing and dating.

## CORRECTIVE ACTION PLAN

Attach clarifications and additional information as needed. Identify attached material in appropriate section of this form.

## PART A: TO BE COMPLETED BY PROJECT MANAGER OR DESIGNEE

(1) PROJECT:		
(2) PROJECT MANAGER:	(3) UXOQCS:	
(4) CAR NO(S) AND DATE(S) ISSUED:		
(5) DEFICIENCY DESCRIPTION AND LOCATION:		
(6) PLANNED ACTIONS	(7) ASSIGNED RESPONSIBILITY	(8) COMPLETION DUE DATE
(9) PROJECT MANAGER SIGNATURE: _____ DATE: _____		

## PART B: TO BE COMPLETED BY UXOQCS OR DESIGNEE

(10) CAP REVIEWED BY: _____	DATE: _____
(11) REVIEWER COMMENTS:	
(12) CAP DISPOSITION: (CHECK ONLY ONE AND EXPLAIN STIPULATIONS, IF ANY) <input type="checkbox"/> APPROVED WITHOUT STIPULATIONS <input type="checkbox"/> APPROVED WITH STIPULATIONS <input type="checkbox"/> APPROVAL DELAYED, FURTHER PLANNING REQUIRED  COMMENTS:	
(13) UXOQCS SIGNATURE: _____	DATE: _____



**Form 10-10**  
**Weekly Quality Control Report**

Contract: N62470-02-D-3052/CTO-0047

Date: \_\_\_\_\_  
Report No: \_\_\_\_\_

LOCATION OF WORK: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

WEATHER: (CLEAR) (FOG) (P.CLOUDY) (RAIN) (WINDY)

TEMPERATURE: MIN \_\_\_\_\_ °F MAX \_\_\_\_\_ °F

1. Work performed today:

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2. Work performed today by Removal Action subcontractor(s):

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3. Preparatory Phase Inspections performed today (include personnel present, specification section, drawings, plans, and submittals required for definable feature of work):

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4. Initial phase Inspections performed today (include personnel present, workmanship standard established, material certifications/test are completed, plans and drawings are reviewed):

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5. Follow-up Phase Inspections performed today (include locations, feature of work and level of compliance with plans and procedures):

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**Form 10-10**  
**Weekly Quality Control Report (Continued)**

6. List tests performed, samples collected, and results received:

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7. Verbal instructions received (instructions given by Government representative and actions taken):

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8. Non-conformances/ deficiencies reported:

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9. Site safety monitoring activities performed today:

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10. Remarks:

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*CERTIFICATION: I certify that the above report is complete and correct and that I, or my representative, have inspected all work identified on this report performed by \_\_\_\_\_ subcontractor(s) and have determined to the best of my knowledge and belief that noted work activities are in compliance with the plans and specifications, except as may be noted above.*

UXOQCS (or designee) Signature: \_\_\_\_\_

## USA Environmental, Inc.      QC Inspection Record

Site/Location: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Grid Number: \_\_\_\_\_ Inspected By: \_\_\_\_\_

Start Time: \_\_\_\_\_ AM   PM      Stop Time: \_\_\_\_\_ AM   PM

Personnel:			QC Results:			
Position	Name	Hours	Item	Yes	No	Quantity
UXOQCS			OE Found			
UXO Tech III			Anomalies			
UXO Tech II						
UXO Tech I			Pass Insp.			

*Note: Include if anomaly/OE encountered was previously investigated.*

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Draw the approximate location and depth of items that were answered Yes in QC Results.


SW Corner of Grid

QC Officer Signature: \_\_\_\_\_

**USA Environmental, Inc.**

**WEEKLY QUALITY CONTROL REPORT**

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_ **Contract #:** \_\_\_\_\_ **Task Order #:** \_\_\_\_\_

**Site/Location :** \_\_\_\_\_

**Weather:** \_\_\_\_\_ **Temperature:** \_\_\_\_\_ **Rainfall:** \_\_\_\_\_

**1. Preparatory Inspection:** \_\_\_\_\_

\_\_\_\_\_

**Results:** \_\_\_\_\_

**2. QC Audits Performed**

a. **Operations:** \_\_\_\_\_

\_\_\_\_\_

**Results:** \_\_\_\_\_

b. **Safety:** \_\_\_\_\_

\_\_\_\_\_

**Results:** \_\_\_\_\_

c. **Administrative:** \_\_\_\_\_

\_\_\_\_\_

**Results:** \_\_\_\_\_

d. **Equipment:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Results:** \_\_\_\_\_

\_\_\_\_\_

**Weekly Quality Control Report Con't:**

**3. QC Performed (Grids)**

Number of Grids QC'd: \_\_\_\_\_ Results: \_\_\_\_\_ # Pass \_\_\_\_\_ # Fail

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**4. Follow Up Inspections and Results**

Section(s): \_\_\_\_\_

\_\_\_\_\_

Results: \_\_\_\_\_

**5. Instructions Received: \_\_\_\_\_**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Remarks:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**QC Signature:** \_\_\_\_\_

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Printed Name:** \_\_\_\_\_



## **APPENDIX G**

### **G.0 MINIMUM SEPARATION DISTANCE CALCULATION SHEETS**

Refer to the Explosive Safety Submission for minimum separation distance calculation sheets.

*This space is intentionally left blank.*

## **APPENDIX H**

### **H.0 RESUMES**

Project Management Resumes included are as follows:

- Peter Porter - Program Manager
- Richard Hanoski - Project Manager
- Cheryl Riordan, CSP – Program Safety Manager
- Jeffery Lewis – GIS Manager
- Rickie Bratton – Operations Manager
- Michael Vasquez – Site Administrator

The remaining project resumes, qualifications, and certifications for project personnel will be provided prior to mobilization.



## Peter Porter

### Program Manager

Mr. Porter has 18 years experience providing project management and quality assurance oversight on multi-million dollar environmental, construction, and facility maintenance projects. His responsibilities include project, personnel, and subcontractor management; estimation and preparation of proposals; quality assurance/quality control (QA/QC) engineering; design; critical path method (CPM) scheduling; cost tracking; and marketing.

Mr. Porter has managed a wide variety of projects, including maintenance and deactivation of mobile homes and travel trailers; site design, permitting, development, construction, and certification projects; oil field waste management; manufactured gas plant (MGP) remedial activities incorporating temporary enclosures and vapor management systems; landfill capping; building decontamination and demolition; building construction; soil excavation and disposal; groundwater monitoring system installation and treatment system construction; earthen embankment and cofferdam construction; slurry and biopolymer wall installation; cement-bentonite grout curtain wall installation; vacuum truck operations; and underground and aboveground storage tank installation and closures.

#### Education:

- B.T., Rochester Institute of Technology, NY

#### Certifications/Registrations:

- 40-hour OSHA 29CFR1910.120 Hazardous Waste Operations & Emergency Response Training
- 8-hour OSHA 29CFR1910.120 Refresher Training
- 8-hour Supervisors of Hazardous Waste Operations
- NAVFAC – USACE Construction Quality Management for Contractors
- Bloodborne Pathogens
- First Aid & CPR Training
- Confined Space Entry Training
- Hazardous Materials Transportation Training
- 10-hour Construction Safety & Health Training
- 8-hour Health & Safety Coordinators Training
- Troxler Training for Nuclear Testing Equipment

#### Specialized Training:

- QA/QC engineering
- Landfill capping and MGP remedial activities
- PM scheduling expertise

### Project Highlights

- **2006, Project/Contract Manager, DHS/FEMA Manufactured Homes and Travel Trailers, LA and MS.** Managing four separate contracts for the maintenance and deactivation of mobile homes and travel trailers with several thousand units per contract. Overseeing the operation and maintenance of a 24/7 call center to receive and respond to maintenance problems; performed monthly preventative maintenance visits, emergency and routine maintenance, and refurbishment and restoration activities; and manages deactivation, removal, site restoration, and transportation of temporary housing units.
- **2005, Project Manager, Naval Facilities Engineering Command (NAVFAC), Vieques Island, Puerto Rico.** Managing a \$1.2 million task order for the munitions removal action at munition response sites within the Solid Waste Management Unit (SWMU) 4 – Former Open Burn/Open Detonation Site. Overseeing the technical work plan preparation and awaiting comments from NAVFAC. Upon approval, project work activities consist of: Munitions of Explosive Concern (MEC) surface and subsurface removal actions, including locating, identifying, recovering, evaluating, demilitarizing, managing, and storing MEC and other ordinance related scrap, and completion of an after action report.



- **2005, Project Manager, USACE Omaha District and FEMA, Escambia County, FL.** Managed a rapid response \$2.1 million design and construction of a temporary mobile home group site on 14 acres of open-grass field. Oversaw mobile home park design, mobile home park construction, and hauling and installation of mobile homes.
- **2004, Project Manager, USACE Fort Worth District, LA.** Managed a \$3 million direct award contract for time-critical removal actions to eliminate actual or threatened discharges of non-hazardous oil field wastes (NOW) to nearby navigable waters or the environment. Oversaw emptying of aboveground storage tanks, decontamination of recyclable materials, excavation and stabilization or disposal of contaminated soil and tank contents, abandoning and plugging leaking oil field wells, and restoration of the site.
- **2004, Project Manager, USACE Omaha District and FEMA, Fellsmere, FL.** Managed the rapid response removal, demolition, and replacement of 96 trailers at the 8-acre Sun Ag trailer park. Supervised trailer park demolition, hazardous waste (refrigerants) and white goods separation, and installation of new trailers, including electrical and new gas systems for trailers.
- **2004, Project Manager, Multifaceted Environmental Service Activities (MESA), USACE Los Angeles District, Mission Trails Regional Park, San Diego, CA.** Managed \$1.2 million task order to identify and cleanup unexploded ordnance (UXO), Munitions and Explosives of Concern (MEC), and munitions debris from the former US Army Camp Elliott site. Supervised layout of grids within the 1,000-acre boundary area, determination of MEC locations, establishment and management of a Geographical Information System (GIS), compilation and analysis of chemical and digital data, and implementation of a quality control program. Oversaw removal and destruction of munitions debris according to federal and state regulations.
- **2004, Project Manager, Sells Gap Filler Annex, Sells, AZ.** Oversaw the safe offsite removal and destruction of a previously excavated 16,000-gallon steel UST and concrete manway under a \$250,000 task order. Conducted an approved biological survey and analyzed UST contents prior to removal action.
- **2003, Project Manager, Radiation Disposal Site (RDS), Ithaca, NY.** Managed installation of a 30,000-square-foot slurry wall up to 30 feet deep, and installation of a grout curtain wall consisting of overburden and production rock drilling in combination up to 60-feet deep, followed by pressurized water testing and injection of a cement-bentonite grout to fill fishers in the bedrock. Directed exploratory drilling; installation of a 3-acre composite capping system, including a geosynthetic clay liner (GCL), 60-mil LLDPE liner, and a geocomposite drainage mat; and installation of nine monitoring wells.
- **2003, Site Manager, Christina River Groundwater Extraction System Reconstruction, Newport, DE.** Managed installation of a 430-foot-long, 12-foot-deep groundwater collection trench and a collection manhole containing an automatic pumping system. Directed excavation of the collection trench using trench boxes to support unstable debris-strewn embankment and stone backfill behind an existing sheetpile wall.
- **2002, Project Manager, Superfund Response Action, Pulverizing Services Site, Moorestown, NJ.** Managed the decontamination, demolition, and site restoration of a 24-acre former pesticide processing facility containing multiple areas of concern. Oversaw demolition of six buildings up to 60 feet in height and ranging in size from 5,000 to 30,000 square feet, remedial investigation, and general site restoration.

**RICHARD HANOSKI****PROJECT MANAGER**

DATE COMPLETED BASIC EOD SCHOOL: June 1977

OTHER PERTINENT TRAINING: HAZWOPER 40 HOUR 1996

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**MILITARY EOD ASSIGNMENTS:**

Jul 77 - Dec 78	EOD Technician, Ft. Story, VA. Demo/Training Range. Dare County, NC. Bombing Range. EOD team member during range clearance.
Jan 78- Sep 81	EOD Technician, EOD Group One China Lake Detachment. Providing EOD services in support for R&D Ordnance Systems development.
Oct 81 - May 83	Staff EOD/Ordnance Safety and Diving Officer, Naval Ocean Systems Center, HI. Providing management guidance for all personnel in explosive safety.
May 83 - May 86	Leading Chief Petty Officer/Assistant Operation Officer, EODMU THREE, San Diego, CA. Leading Chief Petty Officer for various shipboard EOD teams. Assistant Operation Officer responsible for management, assignment and resourcing personnel.
Jun 86 - Dec 88	Demo/Disposal Range Officer, EODMU FOUR, Key West, FL. Operations Officer, managing all EOD support for all personnel to include the units annual budget.
Jan 89 - Jan 92	Assistant Chief Inspector for Atlantic and Pacific Fleet Mine-Countermeasure EOD unit; EOD Mine Warfare Inspection Group, Charleston, SC.
Feb 92 – Mar 94	Officer in Charge, EODMU TWO, Virginia Beach, VA. Officer in Charge for EOD Mobile and shipboard EOD Detachments. Responsible for operational readiness and providing EOD Fleet support. Retired from Active Duty.

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**CIVILIAN UXO EXPERIENCE:**

July 94-Aug 94

UXO Supervisor, Human Factors Applications, Inc. UXO Supervisor, at Air Force Bombing Range, Leach Lake, CA.

Sep 94- Oct 94

UXO Specialist, Human Factors Applications, Inc., Williams AFB, Mesa, AZ.

Apr 96- Aug 96

Senior UXO Supervisor, Human Factors Applications, Inc., Time Critical Removal at Jefferson Proving Grounds, IN.

Aug 96-Oct 96

Senior UXO Supervisor, Human Factors Applications, Inc., Ordnance and Explosive Removal Action of 150 acres at Savanna Army Depot IL.

Oct 96-Nov 96

Project Manager, Human Factors Applications, Inc., Time Critical Removal Action of approximately 58 acres at four locations at Jefferson Proving Grounds, IN.

Nov 96- Jan 00

Project Manager, Human Factors Applications, Inc., Responsible for the planning, scheduling, oversight and cost estimating of UXO operations at

Ordnance and Explosives (OE) Removal of 1500 acres at the former Black Hills Army Depot, SD; OE Removal of Lowry Air Force Training Annex located on Buckley Bombing Range Colorado; OE Investigation, Fort Totten, NY; OE Removal Action, Grissom Air Force Base, IN; Ordnance and Explosives (OE) Construction Support, Fort Dix, NJ; Time Critical Removal Action (TCRA) Tobyhanna State Park, PA; Ordnance and Explosives (OE) Removal, Lauderick Creek, Edgewood and Aberdeen Areas Aberdeen Proving Ground MD; Clearance Advisory Officer (CAO), Level One Clearance of four direct fire targetry projects on Canadian Armed Forces Base Petawawa, Ottawa Canada; Construction Support, Tobyhanna Army Depot, PA; OE Removal, Former Sioux Army Depot, Sidney NE; OE Removal, Illinois Ordnance Plant, Marion IL; On-Site Project Manager for OE Investigation Buckley Bombing Range, CO.

Feb 00- Dec 00	Program Manager, Human Factors Applications, Inc., Responsible for the planning, scheduling, oversight and cost estimating of the OE Removal USAESCH CONUS/Alaska Contract.
May 01-Nov 01	Decontamination Manager, Human Factors Applications, Inc., Nof Yam Propellant and Explosives manufacturing Plant, Nof Yam Israel. Responsible for decontamination of explosives and hazardous materials of 197 buildings.
Dec 01-Sept 03	Program Manager, Human Factors Applications, Inc., USAESCH CONUS/OCONUS Contract. Director of Operations for all UXO/OE operations.
April 02- Sept 03	VP/Division Manager Human Factors Applications, Inc.; Responsible for all aspects of the UXO services and Environmental Remediation divisions.
Sept 03- Present	UXO/CWM Project Manager/Program Manager, USA Environmental Inc.; Project Manager responsible for the planning, scheduling, oversight and cost estimating of UXO services for the following projects for the RCRA Facility Investigation, Harmony Church, Ft. Benning, GA. Project Manager for Ft. Ord, Monterey, CA, Camp Butner, AK, Edgewood Proving Ground, MD, Marine Park, NAD, WA, and others. Program Manager for UXO Support in Vieques, Puerto Rico.

<b>Name: Cheryl M. Riordan</b>	<b>Program Occupational Safety Manager</b>
USA Environmental, Inc. – Program Occupational Safety Manager, Aug 2005 – Present	
<b>Number of Years w/other Firms, Name of Firm, Position held, dates of employment:</b> 1 Year: Explosive Ordnance Technologies, Inc. – Corporate Health and Safety Manager Apr 2004 – Aug 2005 4 Years: InfoPro Corporation UXO/OE Services Division - Division Director/Program Manager/Business Development Manager/Corporate Safety and Health Manager, Jan 2000 – Mar 2004 1 Year: American Management Systems – Occupational Safety, Health and Environmental Consultant, Aug 1998 – Dec 1999 3 Years: American Technologies, Inc.– Corporate Safety Manager, Oct 1995 – July 1998 2 Years: GAICO, Inc. – Safety Manager, Feb 1994 – Sept 1995 2 Years: Independent safety consultant working with several consulting firms – Safety Consultant, Aug 1993 – Jul 1995 4 Years: Fort George G. Meade (US Army Civilian) – Installation Safety Manager, May 1987 – Jan 1991 1 Year: Office of the Secretary of Defense, Safety and Health Policy Directorate (Civilian) – Safety Manager, Jan 1988 – Jan 1989 6 Years: Defense Contracts Administration Services (Civilian) – Safety Specialist, Aug 1981 – May 1987	
<b>Educational Background: (Year, Degree, Specialization, Name of U.S. Accredited University)</b> 1985, Master of Science, Safety and Health Management, Indiana University, Bloomington, IN 1983, Bachelor of Science, Community Health/Sociology, St. Joseph's University, Philadelphia, PA	
<b>Professional Registration (if any): (Year, State, Discipline)</b> 2002, Certified Safety Professional, Board of Certified Safety Professionals, No. 17377	
<b>Qualifications/Years of Experience:</b> October 2002 - present, Certified Safety Professional; Aug 1981 – Jan 1991 and Aug 1993 – Present, 23 years experience in Occupational Safety and Health; Jul 1995 – Present, 10 years experience in compliance with 29 CFR 1910.120 and the Corps of Engineers EM-385-1-1; Aug 1981 – Jan 1991 and Jul 1995 – Present, 19 years experience in explosives safety; First Aid/CPR qualified (5 years experience as CPR instructor with American Red Cross	
<b>Projects performed by this person:</b> <b>Environmental Investigation and Removal Action, Engineering Proving Ground, Fort Belvoir, VA; Occupational Safety and Health Manager;</b> Ms. Riordan provided occupational safety and health oversight for all aspects of the project. The project had been started by another company, but was not completed when funding ran out. In taking over this project, a Site Safety and Health Plan had to be updated to suit safety and health standards of contractor. An Explosive Safety Submission had to be prepared and routed through all required channels for approval. <b>SOW:</b> Project involved completion of a highway through the Engineering Proving Ground owned by Ft. Belvoir. This property had formerly been used for the testing of anti-personnel and anti-tank mines, and the extent of the MEC contamination was worse than the customer had estimated. <b>Completion Date:</b> Summer 2005. <b>Duration:</b> 2 years; <b>Duration this person performed on project:</b> 1 year; <b>Ability to anticipate and respond to clients' needs:</b> Ms. Riordan was involved in numerous planning meetings with the client (Corps of Engineers), the end Customer (Fort Belvoir), as well as the Virginia Department of Transportation and local authorities. She was in regular communication with all parties involved; it was this level of communication that resolved issues early on before they became problems and enabled the client to expand the scope of work to areas not covered in the initial scope.	
<b>Cuddeback Bombing and Gunnery Range Operations &amp; Maintenance, San Bernadino, CA; Occupational Safety and Health Manager;</b> Ms. Riordan prepared and implemented the Site Safety and Health Plan, managed the training program, medical surveillance program and personal protective equipment program. She consulted regularly with the UXO Safety Officer on the site to answer questions and to provide interpretation of regulations regarding situations on the site. <b>SOW:</b> The project involved conducting a surface clearance of four square miles which included removal of all surface debris and MEC, removal and disposal of stockpiled ordnance at the OB/OD site; conducting all necessary sampling from the trenches and backfill to grade; conducting an over flight of the entire range complex to obtain aerial photographs to facilitate identification of target locations, burial pits, landfills, and potential areas of live ordnance. Over 180 tons of MEC were removed from the surface of this site. <b>Completion Date:</b> April 2002; <b>Duration:</b> 2 years; <b>Duration this person performed on project:</b> 2 years; <b>Ability to anticipate and respond to clients' needs:</b> Ms. Riordan maintained close contact with site personnel and client safety personnel in order to assure all of client's expectations were met and exceeded on the project.	
<b>Closure of the Superior Valley Gunnery Range OB/OD Facility, China lake, CA; Occupational Safety and Health Manager;</b> Ms. Riordan was involved in providing Occupational Safety and Health oversight of all aspects of this complex project involving MEC and HTRW. Ms. Riordan managed the Medical Surveillance Program, the personal protective equipment program, the training program and the monitoring program on the project. Ms. Riordan provided hazard analyses and updates to the approved Site Safety and Health Plan as work progressed and new operations started on the site. <b>SOW:</b> Closure activities conducted consisted of surface sweeps to pick up MEC, sifting soil stockpiles to segregate ordnance and scrap metal; collecting soil samples; laboratory testing of surface samples, sifted stockpile samples, and soil boring samples; removal and disposal of contaminated soils; regrading and surveying of the site; demilitarization of MEC; and recycling of the demilitarized MEC and scrap metal picked up and segregated during closure of OB/OD facility. Approximately 2,500 cubic yards of soil were sifted, recovering in excess of 59 tons of ordnance and scrap metal. <b>Completion Date:</b> May 2000; <b>Duration:</b> 9 months; <b>Duration this person performed on project:</b> 5 months; <b>Ability to anticipate and respond to clients' needs:</b> Client added additional modifications to the contract to expand the scope of work. Ms. Riordan stayed in close contact with site personnel and client safety personnel in order to assure all of client's expectations were met and exceeded.	
<b>Ordnance Removal Action, Former Illinois Ordnance Plant, Marion, IL; Program Occupational Safety Manager;</b> Ms. Riordan prepared a Site Health and Safety Plan and provided comprehensive safety and health oversight to project operations. Ms. Riordan reviewed and updated the Explosive Safety Submission and obtained approvals. She provided close coordination with an asbestos removal subcontractor. Ms. Riordan developed and provided additional training for personnel working in the vicinity of asbestos operations and provided close oversight of the personal protective	

equipment program, the medical surveillance program and the respiratory protection program. **SOW:** The object of the project was to perform ordnance removal actions for approximately 7.9 acres; identification, and disposal of all MEC and non-MEC related scrap; and removal of buried asbestos containing material; soil sampling and analysis for RCRA 8 metals and nitro-explosives. **Completion Date:** November 2000; **Duration:** 8 months; **Duration this person performed on project:** 8 months; **Ability to anticipate and respond to clients' needs:** Ms. Riordan worked closely with the client's safety and health personnel to assure personnel visiting the site were aware of all potential site hazards and were adequately briefed on the site safety procedures.

**OE Construction Support, Massachusetts Military Reservation, Falmouth, MA; Program Occupational Safety Manager;** Ms. Riordan provided comprehensive Occupational Safety oversight to the project. She prepared Site Health and Safety Plan and provided hazard analyses of all site operations. This project involved the first use of the CH2M HILL's Contained Detonation Chamber, which involved analysis of level of protection provided by the equipment to personnel working in the vicinity and development of safe procedures for handling disposal using the equipment. Ms. Riordan's oversight included close contact with the site UXO Safety Officer, and oversight of the medical surveillance program, the personal protective equipment program and the training program. **SOW:** Region I EPA had placed a ban on all open detonation disposal at the Massachusetts Military Reservation (MMR) site. This project was in response to an immediate requirement to meet with the regulators to determine an environmentally acceptable approach to the clean-up of MEC waste that was endangering the single aquifer supporting the Cape Cod drinking water system. **Completion Date:** July 2001; **Duration:** 17 months. **Duration this person performed on project:** 17 months; **Ability to anticipate and respond to clients' needs:** Ms. Riordan worked closely with site personnel and client safety personnel in order to assure all of client's expectations were met and exceeded.



**JEFFERY A. LEWIS****GIS MANAGER**

BS DEGREE IN ENVIRONMENTAL SCIENCE/ GEOGRAPHIC INFORMATION SYSTEMS 2000

OTHER PERTINENT TRAINING: HAZWOPER 40 HOUR NOV 01

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- Sep 98 – May 00      GIS Assistant, Jefferson County Alabama Information Services, GIS department, Birmingham, AL. Worked with ArcView and Arc/Info producing maps and coverages. Updated street maps and county tax maps for the Birmingham and Jefferson County area. Developed custom ArcView software for the Jefferson County Emergency Management Association using Avenue Programming
- Mar 01 – Oct 01      GIS Analyst, Dynamic Drafting and Design (Consulting for IMC Phosphates), Ft. Lonesome, FL. Created and maintained GIS coverages using ArcView and Arc/Info. Used GIS to support the management of over 150,000 acres of company owned land. Produced maps used in permit applications and the permitting process. Supported Engineers and Biologists with graphics and maps used in reports. Analyzed GIS data for use in decision-making. Generated tables using ArcView and Excel
- Nov 01 - Present      GIS Manager, USA Environmental, Inc., Tampa, FL. Oversees project GIS for multiple OE sites using ESRI ArcMap software. Produced final maps for USA's operations at Dahlgren, Va., Camp Pendleton, Ca., Ft. Wingate, NM and others. Produced maps and coverages used in the planning process for work at Wagner Range, Fort Benning, Ga. Supported EE/CA planning (conceptual site model) and work being performed at the Former Frankford Arsenal, Philadelphia, Pa. Supported the project manager during the TPP process at Williams Field, Florence, AZ. Was in charge of GPS data collection and integration at the Williams Field Site visit. In charge of acquiring and integrating relevant base map data and production of shapefiles, coverages and metadata for use in project GIS. Uses Microstation and AutoCAD data for inclusion into GIS. Creates, organizes and manages associated database files. Manage GPS survey data either sent to, or collected at project sites. Supports project managers with analysis, field maps and final maps. Supports Geophysical operations with maps and fieldwork. In charge of creating and managing project web site including Internet GIS applications. Reviews documents for correctness and completeness when concerning GIS.



## Rickie Bratton

### Operations Manager

Mr. Rickie Bratton has more than 22 years of construction management experience nationwide. He has been responsible for quality control supervision of multi-disciplinary projects and has extensive construction experience, including slurry wall construction, landfill construction and closure, construction management, and biopolymer drains.

Responsibilities include managing day-to-day activities, reviewing specifications to plan procedures for construction based on start and completion dates, and meeting staffing requirements for each phase of construction.

### Project Highlights

- **2006, START Team Manager, Lake Charles and New Orleans, LA.** Managed water sampling team for City of New Orleans, specializing in sampling and assessment activities involving water, mold, sediment, air, wastewater, and facilities. Managed START teams for identification, reconnaissance, and recovery of hazardous materials and household hazardous waste. Activities included cleanup, renovation, and disposal activities; health and safety briefing; assessment and coordination; emergency response actions at facilities posing immediate threat; and data collection and development of information technology systems to enhance clean-up efforts.
- **2005, Superintendent, USACE Omaha District and FEMA, Escambia County, FL.** Managed \$2.1 million design and construction of a temporary mobile home group site on 14 acres of open-grass field. Work included mobile home park design, mobile home park construction, and hauling and installation of mobile homes.
- **2005, Superintendent, USACE Omaha District and FEMA, Fellsmere, FL.** Oversaw site work for removal, demolition, and replacement of 96 trailers in the Sun Ag trailer park. Managed trailer park demolition, hazardous waste (refrigerants) and white goods separation, installation of new trailers, electrical work, and new gas system for all trailers at the 8-acre park.
- **2004, Superintendent, Naval Facilities Engineering Command (NAVFAC) Southern Division (NAVFAC Atlantic), Bravo ATCT, MS.** Oversaw site work during construction of a \$3 million Air Traffic Control Tower and Beacon for NAVFAC Southern Division (now NAVFAC Atlantic), including construction, demolition, fire protection, and HVAC installation at an undisclosed location.
- **2003, Field Supervisor, Colored Water Treatment Facility, Costa Mesa, CA.** Supervised analysis of deficiencies and provided quality assurance and quality control (QA/QC) for a new drinking water treatment plant. Addressed and corrected deficiencies, maintained site records, researched vendors, and secured bids for specialized work.

### Education:

- 30 years experience in lieu of degree

### Certifications/Registrations:

- 8-hour Hazardous Waste Site Refresher
- Confined Space Entry Refresher
- Supervisors Safety Training for Hazardous Waste
- 40-hour OSHA 29 CFR 1910.120
- USACE Quality Control Management for Contractors
- Hazardous Site Training
- CPR/AED First Aid Training, American Red Cross

### Specialized Training:

- Slurry Wall Construction
- Landfill Construction and Closure
- Construction Management
- Biopolymer Drains



- **2002, Superintendent, McConnell Air Force Base (AFB), KS.** Managed demolition of a sewage lift station and construction of new station under this \$2.6 million contract. Supervised removal of 2,600 cubic yards of dirt, 120-foot force-main bypass, 18-foot manholes, and 78 drill piers 34-feet deep.
- **2001, Project Supervisor, Parawax Reclaiming Site Clean Up, Oklahoma City, OK.** Supervised \$1.8 million immediate response removal action of the Parawax Reclaiming Site in support of USEPA Region VI under the USACE Rapid Response / Immediate Response (RR / IR) contract. Responsible for procurement of tools and materials. Reported on progress, material use, and costs. Managed demolition and removal of site buildings, tanks, piping, and other associated debris; excavation and disposal of 2,000 cubic yards of PCB-impacted soils; hauling 10,000 cubic yards of clean backfill to fill in excavations and an onsite pond; and site restoration through re-grading and seeding. Successfully directed project resulting in an on-time completion within budget.
- **2001, Project Supervisor, Fort Benjamin Harrison, IN.** Responsible for project coordination, managing day-to-day activities, providing personnel management, procuring tools and materials, directing construction management, providing subcontract management, and overseeing operations. Managed transportation and ultimate disposal of contaminated soil. Project was completed as an immediate response under the USACE Louisville Pre-Placed Remedial Action Contract (PRAC).
- **2000, Site Superintendent, Nicor Mercury Remediation, Chicago, IL.** Responsible for daily operations on this \$1 million contract to clean-up mercury contamination of 5,000 residential homes in the Greater Chicago area. Oversaw removal of mercury, cleaning activities, sealing of concrete floors and walls, and testing before, during, and after work completion to ensure complete mercury removal. Managed personnel and subcontractors, reported on progress and materials used, and monitored budgets and costs. Supervised waste characterization studies and overall onsite operations. Additionally, managed transportation and disposal of contaminated materials ensuring strict adherence to applicable regulations. Assigned project managers and field personnel, and procured tools and materials.



## Michael Vasquez

Site/Project Administrator

Mr. Vasquez performs onsite project coordination including: database management, scheduling, subcontract management, sampling, and quality control. Mr. Vasquez's experience includes positions as Quality Assurance Officer and Safety Manager for environmental toxicology laboratories.

### Project Highlights

- **2006, Site Coordinator, USACE Omaha District VB/I70 Superfund Site Residential Lead Cleanup, Denver, CO.** Coordinated, organized, and prepared soil remediation and lead-based paint abatements at residential properties. Responsibilities included initial and clearance soil and surface sampling; residential lead-based paint assessments utilizing XRF, mapping, and photo documentation of properties within project boundaries; and coordinating subcontractor construction crews, utility locates, and records handling.
- **2005, Quality Assurance & Quality Control Officer, Stillwater, OK.** Ensured laboratory compliance and certification, and wrote and enforced standard operating procedures, safety plan, and QA/QC plan. Performed NPDES permit compliance consulting, and wastewater analysis and analytical tests, including WET (whole effluent toxicity) analyses. Completed discharge monitoring reports, prepared bid proposals, maintained records and logs, performed biological aquaculturing, and conducted Toxicity Identification Evaluations and Toxicity Reduction Evaluations.
- **2004, Laboratory Technician, Stillwater, OK.** Performed biological aquaculturing and analytical chemistry, and conducted wastewater whole effluent toxicity tests.

### Education:

- B.A., Oklahoma State University, Stillwater, OK

### Certifications/Registrations:

- 40-hour HAZMAT certification
- Niton XRF analyzers and radiation safety

### Specialized Training:

- Ion chromatography
- Effluent toxicity reduction evaluations
- Bilingual in Spanish

## **APPENDIX I**

### **I.0 STANDARD OPERATING PROCEEDURES (SOP)**

Site Specific SOPs will be maintained on-site at the PRI/USA field office.

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